



COPY OF PAPERS
ORIGINALLY FILED

SEQUENCE LISTING

RECEIVED

MAR - 6 2002

TECH CENTER 1600/2900

5

<110> Stocker, Penny J.
Steimel-Crespi, Dorothy T.
Crespi, Charles L.
Rief, Timothy C
Patten, Christopher J.

10

<120> P-GLYCOPROTEINS AND USES THEREOF

<130> G0307/7017

15

<140> US 09/672,725

<141> 2000-09-28

<150> US 60/156,510

<151> 1999-09-28

20

<160> (32)

<170> FastSEQ for Windows Version 3.0

25

<210> 1

<211> 4279

<212> DNA

<213> Canis familiaris

30

<220>

<221> CDS

<222> (17)...(3859)

<400> 1

35

ggagcgcgag gtcggg atg gat cct gaa gga ggc cgt aag ggg agt gca gag 52
Met Asp Pro Glu Gly Gly Arg Lys Gly Ser Ala Glu
1 5 10

40

aag aac ttc tgg aaa atg ggc aaa aaa agt aaa aaa aat gag aag aaa 100
Lys Asn Phe Trp Lys Met Gly Lys Lys Ser Lys Lys Asn Glu Lys Lys
15 20 25

45

gaa aag aaa cca act gtc agc acg ttt gca atg ttt cgc tat tca aat 148
Glu Lys Lys Pro Thr Val Ser Thr Phe Ala Met Phe Arg Tyr Ser Asn
30 35 40

50

tgg ctt gat agg ttg tat atg ttg gtg ggg aca atg gct gcc atc atc 196
Trp Leu Asp Arg Leu Tyr Met Leu Val Gly Thr Met Ala Ala Ile Ile
45 50 55 60

55

cat gga gct gca ctc cct ctc atg atg ctg gtt ttt gga aac atg aca 244
His Gly Ala Ala Leu Pro Leu Met Met Leu Val Phe Gly Asn Met Thr
65 70 75

60

gat agc ttt gca aat gca gga att tca aga aac aaa act ttt cca gtt 292
Asp Ser Phe Ala Asn Ala Gly Ile Ser Arg Asn Lys Thr Phe Pro Val
80 85 90

ata att aat gaa agt att acg aac aat aca caa cat ttc atc aac cat 340
Ile Ile Asn Glu Ser Ile Thr Asn Asn Thr Gln His Phe Ile Asn His

B
Page 1-54

	95	100	105	
5	ctg gag gag gaa atg acc acg tat gcc tat tat tac agt ggg atc ggt Leu Glu Glu Glu Met Thr Thr Tyr Ala Tyr Tyr Tyr Ser Gly Ile Gly 110 115 120	388		
10	gct ggc gtg ctg gtg gct gct tac atc cag gtt tca ttc tgg tgc ctg Ala Gly Val Leu Val Ala Ala Tyr Ile Gln Val Ser Phe Trp Cys Leu 125 130 135 140	436		
15	gca gca gga aga cag ata ctc aaa att aga aaa caa ttt ttt cat gct Ala Ala Gly Arg Gln Ile Leu Lys Ile Arg Lys Gln Phe Phe His Ala 145 150 155	484		
20	atc atg cga cag gag att ggc tgg ttt gac gtg cat gac gtt ggg gag Ile Met Arg Gln Glu Ile Gly Trp Phe Asp Val His Asp Val Gly Glu 160 165 170	532		
25	ctt aac acc cgg ctc aca gac gat gtc tcc aaa atc aat gaa gga att Leu Asn Thr Arg Leu Thr Asp Asp Val Ser Lys Ile Asn Glu Gly Ile 175 180 185	580		
30	ggc gac aaa att gga atg ttc ttt cac tca ata gca aca ttt ttc acc Gly Asp Lys Ile Gly Met Phe Phe His Ser Ile Ala Thr Phe Phe Thr 190 195 200	628		
35	ggt ttt ata gtg ggg ttt aca cgt ggt tgg aag cta acc ctt gtg att Gly Phe Ile Val Gly Phe Thr Arg Gly Trp Lys Leu Thr Leu Val Ile 205 210 215 220	676		
40	ttg gcc atc agc cct gtt ctt gga ctt tca gcc gcc atc tgg gca aag Leu Ala Ile Ser Pro Val Leu Gly Leu Ser Ala Ala Ile Trp Ala Lys 225 230 235	724		
45	ata cta tct tca ttt act gat aaa gaa ctc ttg gcc tat gca aaa gct Ile Leu Ser Ser Phe Thr Asp Lys Glu Leu Leu Ala Tyr Ala Lys Ala 240 245 250	772		
50	gga gca gta gct gaa gaa gtc tta gca gca atc aga act gtg att gcc Gly Ala Val Ala Glu Glu Val Leu Ala Ala Ile Arg Thr Val Ile Ala 255 260 265	820		
55	ttt gga gga caa aag aaa gaa ctt gaa agg tac aac aaa aat tta gaa Phe Gly Gly Gln Lys Lys Glu Leu Glu Arg Tyr Asn Lys Asn Leu Glu 270 275 280	868		
60	gaa gct aaa gga att ggg ata aag aaa gct atc acg gcc aac att tct Glu Ala Lys Gly Ile Gly Ile Lys Lys Ala Ile Thr Ala Asn Ile Ser 285 290 295 300	916		
65	att ggt gcc gct ttc tta ttg atc tat gca tca tat gct ctg gct ttc Ile Gly Ala Ala Phe Leu Leu Ile Tyr Ala Ser Tyr Ala Leu Ala Phe 305 310 315	964		
70	tgg tat ggg acc tcc ttg gtc ctc tcc agt gaa tat tct att gga caa Trp Tyr Gly Thr Ser Leu Val Leu Ser Ser Glu Tyr Ser Ile Gly Gln 320 325 330	1012		
75	gta ctc act gtc ttc ttt tct gta tta att ggg gct ttt agt att gga Val Leu Thr Val Phe Phe Ser Val Leu Ile Gly Ala Phe Ser Ile Gly 340 345 350	1060		

	335	340	345	
5	cag gca tcc cca agc att gaa gca ttt gca aac gca aga gga gca gct Gln Ala Ser Pro Ser Ile Glu Ala Phe Ala Asn Ala Arg Gly Ala Ala 350 355 360	1108		
10	tat gaa atc ttc aag ata att gac aat aaa cca agc att gac agc tat Tyr Glu Ile Phe Lys Ile Ile Asp Asn Lys Pro Ser Ile Asp Ser Tyr 365 370 375 380	1156		
15	tcg aag agt gga cat aaa cca gat aat att aag gga aat ttg gaa ttc Ser Lys Ser Gly His Lys Pro Asp Asn Ile Lys Gly Asn Leu Glu Phe 385 390 395	1204		
20	aaa aat gtt cac ttc agt tac cct tct cga aaa gaa gtt aag atc tta Lys Asn Val His Phe Ser Tyr Pro Ser Arg Lys Glu Val Lys Ile Leu 400 405 410	1252		
25	aag ggt ctc aac ctg aag gtt cag agt ggg cag aca gtg gcg ctg gtt Lys Gly Leu Asn Leu Lys Val Gln Ser Gly Gln Thr Val Ala Leu Val 415 420 425	1300		
30	ggg aac agt ggc tgc ggg aag agc acg acc gtg cag ctg atg cag agg Gly Asn Ser Gly Cys Gly Lys Ser Thr Thr Val Gln Leu Met Gln Arg 430 435 440	1348		
35	ctc tat gac ccc aca gat ggc atg gtc tgt att gat gga cag gac att Leu Tyr Asp Pro Thr Asp Gly Met Val Cys Ile Asp Gly Gln Asp Ile 445 450 455 460	1396		
40	agg acc ata aat gta agg cat ctt cgg gaa att act ggt gtg gtg agt Arg Thr Ile Asn Val Arg His Leu Arg Glu Ile Thr Gly Val Val Ser 465 470 475	1444		
45	cag gag cct gtg ttg ttt gcc acc acg ata gct gaa aac att cgc tat Gln Glu Pro Val Leu Phe Ala Thr Thr Ile Ala Glu Asn Ile Arg Tyr 480 485 490	1492		
50	ggc cgc gaa aat gtc acc atg gat gag att gag aaa gct gtt aag gaa Gly Arg Glu Asn Val Thr Met Asp Glu Ile Glu Lys Ala Val Lys Glu 495 500 505	1540		
55	gcc aat gcc tat gat ttt atc atg aaa cta cct aat aaa ttt gac act Ala Asn Ala Tyr Asp Phe Ile Met Lys Leu Pro Asn Lys Phe Asp Thr 510 515 520	1588		
60	ctg gtt gga gag aga ggg gcc cag ctg agt ggt gga cag aaa cag aga Leu Val Gly Glu Arg Gly Ala Gln Leu Ser Gly Gly Gln Lys Gln Arg 525 530 535 540	1636		
65	atc gcc att gct cgg gcc ctg gtt cgc aac ccc aag att ctt ctg ctg Ile Ala Ile Ala Arg Ala Leu Val Arg Asn Pro Lys Ile Leu Leu Leu 545 550 555	1684		
70	gat gag gca acg tca gct ctg gac act gaa agt gaa gca gtg gtt cag Asp Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser Glu Ala Val Val Gln 560 565 570	1732		
75	gtg gcc ctg gat aag gcc aga aaa ggc cgg act acc att gtg ata gct Val Ala Leu Asp Lys Ala Arg Lys Gly Arg Thr Thr Ile Val Ile Ala 575 580 585 590	1780		

	575	580	585	
5	cat cgt ttg tct aca gtt cgt aat gcc gat gtc att gct ggt ttt gat His Arg Leu Ser Thr Val Arg Asn Ala Asp Val Ile Ala Gly Phe Asp 590 595 600			1828
10	gat gga gtc att gtg gag aaa gga aat cat gat gaa ctc atg aaa gag Asp Gly Val Ile Val Glu Lys Gly Asn His Asp Glu Leu Met Lys Glu 605 610 615 620			1876
	aag ggc att tac ttc aaa ctt gtc aca atg cag aca aga gga aat gaa Lys Gly Ile Tyr Phe Lys Leu Val Thr Met Gln Thr Arg Gly Asn Glu 625 630 635			1924
15	att gag tta gaa aat gcc act ggt gaa tcc aaa agt gaa agt gat gcc Ile Glu Leu Glu Asn Ala Thr Gly Glu Ser Lys Ser Glu Ser Asp Ala 640 645 650			1972
20	ttg gaa atg tct cca aaa gat tca ggg tcc agt tta ata aaa aga aga Leu Glu Met Ser Pro Lys Asp Ser Gly Ser Ser Leu Ile Lys Arg Arg 655 660 665			2020
25	tca act cgc agg agt ata cat gca cca caa ggc caa gac aga aag ctt Ser Thr Arg Arg Ser Ile His Ala Pro Gln Gly Gln Asp Arg Lys Leu 670 675 680			2068
30	ggt aca aaa gag gac ttg aat gag aat gta cct cca gtt tcc ttc tgg Gly Thr Lys Glu Asp Leu Asn Glu Asn Val Pro Pro Val Ser Phe Trp 685 690 695 700			2116
	agg att ctg aag ctg aac tca act gaa tgg cct tat ttt gtg gtt ggt Arg Ile Leu Lys Leu Asn Ser Thr Glu Trp Pro Tyr Phe Val Val Gly 705 710 715			2164
35	ata ttt tgt gct att ata aac gga ggc ctg caa cca gca ttt tca ata Ile Phe Cys Ala Ile Ile Asn Gly Gly Leu Gln Pro Ala Phe Ser Ile 720 725 730			2212
40	ata ttt tca agg att ata ggg atc ttt acc cga gat gag gat cct gaa Ile Phe Ser Arg Ile Ile Gly Ile Phe Thr Arg Asp Glu Asp Pro Glu 735 740 745			2260
45	aca aaa cga cag aat agt aac atg ttt tct gta ttg ttt cta gtc ctt Thr Lys Arg Gln Asn Ser Asn Met Phe Ser Val Leu Phe Leu Val Leu 750 755 760			2308
50	gga att att tct ttt att aca ttt ttc ctc cag ggc ttc aca ttt ggc Gly Ile Ile Ser Phe Ile Thr Phe Phe Leu Gln Gly Phe Thr Phe Gly 765 770 775 780			2356
	aaa gct ggg gag atc ctc act aag cgg ctt cga tac atg gtt ttc aga Lys Ala Gly Glu Ile Leu Thr Lys Arg Leu Arg Tyr Met Val Phe Arg 785 790 795			2404
55	tcc atg ctg aga cag gat gtc agc tgg ttt gat gac cct aaa aac acc Ser Met Leu Arg Gln Asp Val Ser Trp Phe Asp Asp Pro Lys Asn Thr 800 805 810			2452
60	act gga gca ttg aca acc agg ctt gcc aat gat gcg gct caa gtt aaa Thr Gly Ala Leu Thr Thr Arg Leu Ala Asn Asp Ala Ala Gln Val Lys			2500

	815	820	825	
5	ggg gct ata ggt tcc agg ctt gct gtc att acc cag aat ata gca aat Gly Ala Ile Gly Ser Arg Leu Ala Val Ile Thr Gln Asn Ile Ala Asn 830 835 840			2548
10	ctt ggg aca ggc att att ata tcc tta atc tat ggt tgg caa tta aca Leu Gly Thr Gly Ile Ile Ile Ser Leu Ile Tyr Gly Trp Gln Leu Thr 845 850 855 860			2596
15	ctt tta ctc tta gca att gta ccc atc att gca ata gca gga gtt gtt Leu Leu Leu Leu Ala Ile Val Pro Ile Ile Ala Ile Ala Gly Val Val 865 870 875			2644
20	gaa atg aaa atg ttg tct gga caa gca ctg aaa gat aag aaa gag cta Glu Met Lys Met Leu Ser Gly Gln Ala Leu Lys Asp Lys Lys Glu Leu 880 885 890			2692
25	gaa gga gct ggg aag att gct aca gaa gcc atc gaa aac ttc cga act Glu Gly Ala Gly Lys Ile Ala Thr Glu Ala Ile Glu Asn Phe Arg Thr 895 900 905			2740
30	gtt gtt tct ttg act cgg gag cag aag ttt gaa tac atg tat gca cag Val Val Ser Leu Thr Arg Glu Gln Lys Phe Glu Tyr Met Tyr Ala Gln 910 915 920			2788
35	agt ttg caa gta cca tac aga aac tct ttg agg aaa gca cac atc ttc Ser Leu Gln Val Pro Tyr Arg Asn Ser Leu Arg Lys Ala His Ile Phe 925 930 935 940			2836
40	ggg gtc tca ttt tct atc acc cag gca atg atg tat ttt tcc tat gct Gly Val Ser Phe Ser Ile Thr Gln Ala Met Met Tyr Phe Ser Tyr Ala 945 950 955			2884
45	ggc tgt ttc cgg ttt ggt gcc tac ttg gtg gca aat gag ttc atg aac Gly Cys Phe Arg Phe Gly Ala Tyr Leu Val Ala Asn Glu Phe Met Asn 960 965 970			2932
50	ttt cag gat gtt ctt ttg gta ttc tca gct att gtc ttt ggt gcc atg Phe Gln Asp Val Leu Leu Val Phe Ser Ala Ile Val Phe Gly Ala Met 975 980 985			2980
55	gca gtg ggg cag gtc agt tca ttt gct cct gac tat gcc aaa gcc aaa Ala Val Gly Gln Val Ser Ser Phe Ala Pro Asp Tyr Ala Lys Ala Lys 990 995 1000			3028
60	gta tca gca gcc cac gtc atc atg atc att gaa aaa agc cct ctg att Val Ser Ala Ala His Val Ile Met Ile Ile Glu Lys Ser Pro Leu Ile 1005 1010 1015 1020			3076
65	gac agc tac agc cct cac ggc ctc aag cca aat acg ttg gaa gga aat Asp Ser Tyr Ser Pro His Gly Leu Lys Pro Asn Thr Leu Glu Gly Asn 1025 1030 1035			3124
70	gtg aca ttt aat gag gtc gtg ttc aac tat ccc act cga cca gac atc Val Thr Phe Asn Glu Val Val Phe Asn Tyr Pro Thr Arg Pro Asp Ile 1040 1045 1050			3172
75	ccc gtg ctc cag ggg ctg agc ctc gag gtg aag aag ggc cag acg ctg Pro Val Leu Gln Gly Leu Ser Leu Glu Val Lys Lys Gly Gln Thr Leu			3220

	1055	1060	1065	
5	gcc ctc gta ggt agc agt ggc tgt ggg aag agc aca gtt gtt cag ctc Ala Leu Val Gly Ser Ser Gly Cys Gly Lys Ser Thr Val Val Gln Leu 1070 1075 1080			3268
10	cta gag cgc ttc tat gac ccc ttg gct ggt tca gtg cta att gat ggc Leu Glu Arg Phe Tyr Asp Pro Leu Ala Gly Ser Val Leu Ile Asp Gly 1085 1090 1095 1100			3316
	aaa gag ata aag cac ctg aat gtc cag tgg ctc cga gca cac ctg ggc Lys Glu Ile Lys His Leu Asn Val Gln Trp Leu Arg Ala His Leu Gly 1105 1110 1115			3364
15	atc gtg tct cag gag ccc atc ctg ttt gac tgc agc att gcc gag aac Ile Val Ser Gln Glu Pro Ile Leu Phe Asp Cys Ser Ile Ala Glu Asn 1120 1125 1130			3412
20	att gcc tat gga gac aac agc cgg gtc gta tca cat gaa gag att atg Ile Ala Tyr Gly Asp Asn Ser Arg Val Val Ser His Glu Glu Ile Met 1135 1140 1145			3460
25	cag gca gcc aag gag gcc aac ata cac cac ttc atc gag aca ctc cct Gln Ala Ala Lys Glu Ala Asn Ile His His Phe Ile Glu Thr Leu Pro 1150 1155 1160			3508
30	gag aaa tac aac acc aga gta gga gac aaa gga acc cag ctc tct ggt Glu Lys Tyr Asn Thr Arg Val Gly Asp Lys Gly Thr Gln Leu Ser Gly 1165 1170 1175 1180			3556
	ggc cag aaa cag cgc att gcc ata gct cgc gct ctt gtt aga cag cct Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg Ala Leu Val Arg Gln Pro 1185 1190 1195			3604
35	cat att ttg ctt ttg gat gaa gct aca tca gct ctg gat aca gaa agt His Ile Leu Leu Leu Asp Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser 1200 1205 1210			3652
40	gaa aag gtt gtc caa gaa gcc ctg gac aaa gcc aga gaa ggc cgc acc Glu Lys Val Val Gln Glu Ala Leu Asp Lys Ala Arg Glu Gly Arg Thr 1215 1220 1225			3700
45	tgc att gtg atc gcc cac cgc ttg tcc acc atc cag aat gca gat tta Cys Ile Val Ile Ala His Arg Leu Ser Thr Ile Gln Asn Ala Asp Leu 1230 1235 1240			3748
50	ata gtg gtg ttt cag aat ggc aaa gtc aag gag cat ggc aca cat caa Ile Val Val Phe Gln Asn Gly Lys Val Lys Glu His Gly Thr His Gln 1245 1250 1255 1260			3796
	cag ctg ctg gcc cag aaa ggc atc tat ttt tcc atg gtc agt gtc cag Gln Leu Leu Ala Gln Lys Gly Ile Tyr Phe Ser Met Val Ser Val Gln 1265 1270 1275			3844
55	gct gga gca aag cgc tagtgaactg tggccatatg agctgttaaa tatttttttaa Ala Gly Ala Lys Arg 1280			3899
60	tatttggtgtt aaaacatggc atttaaatcaa agttaaaagg tgagcactta ctggaaaaac tatgtagaac tacctgttta acatttcttg ctgcaactga agatcattcc accaagttca			3959 4019

gagtccttcag attttataat taaaggaacc aaaagaaaca ttatctgatg gaataaaata 4079
 ctgggtgttaa ttgcattata aaattataga gtaattcaaa gtagattttg ttaataaatt 4139
 gtataatttt tgtttatatt ttatttgtaa cttactgctt tgctgaaaga ttatagaagt 4199
 ggtaaaaagt actgaatgtt tgaataaagt gctagctata ataaaactaa acttttatat 4259
 5 caaaaaaaaa aaaaaaaaaa 4279

<210> 2

<211> 1281

<212> PRT

10 <213> Canis familiaris

<400> 2

	Met	Asp	Pro	Glu	Gly	Gly	Arg	Lys	Gly	Ser	Ala	Glu	Lys	Asn	Phe	Trp	
	1				5					10					15		
15	Lys	Met	Gly	Lys	Lys	Ser	Lys	Lys	Asn	Glu	Lys	Lys	Glu	Lys	Lys	Pro	
				20					25					30			
	Thr	Val	Ser	Thr	Phe	Ala	Met	Phe	Arg	Tyr	Ser	Asn	Trp	Leu	Asp	Arg	
				35				40					45				
	Leu	Tyr	Met	Leu	Val	Gly	Thr	Met	Ala	Ala	Ile	Ile	His	Gly	Ala	Ala	
20		50					55					60					
	Leu	Pro	Leu	Met	Met	Leu	Val	Phe	Gly	Asn	Met	Thr	Asp	Ser	Phe	Ala	
	65					70					75					80	
	Asn	Ala	Gly	Ile	Ser	Arg	Asn	Lys	Thr	Phe	Pro	Val	Ile	Ile	Asn	Glu	
					85					90					95		
25	Ser	Ile	Thr	Asn	Asn	Thr	Gln	His	Phe	Ile	Asn	His	Leu	Glu	Glu	Glu	
				100					105					110			
	Met	Thr	Thr	Tyr	Ala	Tyr	Tyr	Tyr	Ser	Gly	Ile	Gly	Ala	Gly	Val	Leu	
				115				120					125				
	Val	Ala	Ala	Tyr	Ile	Gln	Val	Ser	Phe	Trp	Cys	Leu	Ala	Ala	Gly	Arg	
30		130					135					140					
	Gln	Ile	Leu	Lys	Ile	Arg	Lys	Gln	Phe	Phe	His	Ala	Ile	Met	Arg	Gln	
	145					150					155					160	
	Glu	Ile	Gly	Trp	Phe	Asp	Val	His	Asp	Val	Gly	Glu	Leu	Asn	Thr	Arg	
					165					170					175		
35	Leu	Thr	Asp	Asp	Val	Ser	Lys	Ile	Asn	Glu	Gly	Ile	Gly	Asp	Lys	Ile	
				180					185					190			
	Gly	Met	Phe	Phe	His	Ser	Ile	Ala	Thr	Phe	Phe	Thr	Gly	Phe	Ile	Val	
				195				200					205				
	Gly	Phe	Thr	Arg	Gly	Trp	Lys	Leu	Thr	Leu	Val	Ile	Leu	Ala	Ile	Ser	
40		210					215					220					
	Pro	Val	Leu	Gly	Leu	Ser	Ala	Ala	Ile	Trp	Ala	Lys	Ile	Leu	Ser	Ser	
	225					230					235					240	
	Phe	Thr	Asp	Lys	Glu	Leu	Leu	Ala	Tyr	Ala	Lys	Ala	Gly	Ala	Val	Ala	
					245					250					255		
45	Glu	Glu	Val	Leu	Ala	Ala	Ile	Arg	Thr	Val	Ile	Ala	Phe	Gly	Gly	Gln	
				260					265					270			
	Lys	Lys	Glu	Leu	Glu	Arg	Tyr	Asn	Lys	Asn	Leu	Glu	Glu	Ala	Lys	Gly	
				275				280					285				
	Ile	Gly	Ile	Lys	Lys	Ala	Ile	Thr	Ala	Asn	Ile	Ser	Ile	Gly	Ala	Ala	
50		290					295					300					
	Phe	Leu	Leu	Ile	Tyr	Ala	Ser	Tyr	Ala	Leu	Ala	Phe	Trp	Tyr	Gly	Thr	
	305					310					315					320	
	Ser	Leu	Val	Leu	Ser	Ser	Glu	Tyr	Ser	Ile	Gly	Gln	Val	Leu	Thr	Val	
					325					330					335		
55	Phe	Phe	Ser	Val	Leu	Ile	Gly	Ala	Phe	Ser	Ile	Gly	Gln	Ala	Ser	Pro	
				340					345					350			
	Ser	Ile	Glu	Ala	Phe	Ala	Asn	Ala	Arg	Gly	Ala	Ala	Tyr	Glu	Ile	Phe	
				355				360					365				
	Lys	Ile	Ile	Asp	Asn	Lys	Pro	Ser	Ile	Asp	Ser	Tyr	Ser	Lys	Ser	Gly	
60		370					375					380					

His Lys Pro Asp Asn Ile Lys Gly Asn Leu Glu Phe Lys Asn Val His
 385 390 395 400
 Phe Ser Tyr Pro Ser Arg Lys Glu Val Lys Ile Leu Lys Gly Leu Asn
 405 410 415
 5 Leu Lys Val Gln Ser Gly Gln Thr Val Ala Leu Val Gly Asn Ser Gly
 420 425 430
 Cys Gly Lys Ser Thr Thr Val Gln Leu Met Gln Arg Leu Tyr Asp Pro
 435 440 445
 10 Thr Asp Gly Met Val Cys Ile Asp Gly Gln Asp Ile Arg Thr Ile Asn
 450 455 460
 Val Arg His Leu Arg Glu Ile Thr Gly Val Val Ser Gln Glu Pro Val
 465 470 475 480
 Leu Phe Ala Thr Thr Ile Ala Glu Asn Ile Arg Tyr Gly Arg Glu Asn
 485 490 495
 15 Val Thr Met Asp Glu Ile Glu Lys Ala Val Lys Glu Ala Asn Ala Tyr
 500 505 510
 Asp Phe Ile Met Lys Leu Pro Asn Lys Phe Asp Thr Leu Val Gly Glu
 515 520 525
 20 Arg Gly Ala Gln Leu Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala
 530 535 540
 Arg Ala Leu Val Arg Asn Pro Lys Ile Leu Leu Leu Asp Glu Ala Thr
 545 550 555 560
 Ser Ala Leu Asp Thr Glu Ser Glu Ala Val Val Gln Val Ala Leu Asp
 565 570 575
 25 Lys Ala Arg Lys Gly Arg Thr Thr Ile Val Ile Ala His Arg Leu Ser
 580 585 590
 Thr Val Arg Asn Ala Asp Val Ile Ala Gly Phe Asp Asp Gly Val Ile
 595 600 605
 30 Val Glu Lys Gly Asn His Asp Glu Leu Met Lys Glu Lys Gly Ile Tyr
 610 615 620
 Phe Lys Leu Val Thr Met Gln Thr Arg Gly Asn Glu Ile Glu Leu Glu
 625 630 635 640
 Asn Ala Thr Gly Glu Ser Lys Ser Glu Ser Asp Ala Leu Glu Met Ser
 645 650 655
 35 Pro Lys Asp Ser Gly Ser Ser Leu Ile Lys Arg Arg Ser Thr Arg Arg
 660 665 670
 Ser Ile His Ala Pro Gln Gly Gln Asp Arg Lys Leu Gly Thr Lys Glu
 675 680 685
 40 Asp Leu Asn Glu Asn Val Pro Pro Val Ser Phe Trp Arg Ile Leu Lys
 690 695 700
 Leu Asn Ser Thr Glu Trp Pro Tyr Phe Val Val Gly Ile Phe Cys Ala
 705 710 715 720
 Ile Ile Asn Gly Gly Leu Gln Pro Ala Phe Ser Ile Ile Phe Ser Arg
 725 730 735
 45 Ile Ile Gly Ile Phe Thr Arg Asp Glu Asp Pro Glu Thr Lys Arg Gln
 740 745 750
 Asn Ser Asn Met Phe Ser Val Leu Phe Leu Val Leu Gly Ile Ile Ser
 755 760 765
 50 Phe Ile Thr Phe Phe Leu Gln Gly Phe Thr Phe Gly Lys Ala Gly Glu
 770 775 780
 Ile Leu Thr Lys Arg Leu Arg Tyr Met Val Phe Arg Ser Met Leu Arg
 785 790 795 800
 Gln Asp Val Ser Trp Phe Asp Asp Pro Lys Asn Thr Thr Gly Ala Leu
 805 810 815
 55 Thr Thr Arg Leu Ala Asn Asp Ala Ala Gln Val Lys Gly Ala Ile Gly
 820 825 830
 Ser Arg Leu Ala Val Ile Thr Gln Asn Ile Ala Asn Leu Gly Thr Gly
 835 840 845
 60 Ile Ile Ile Ser Leu Ile Tyr Gly Trp Gln Leu Thr Leu Leu Leu Leu
 850 855 860

Ala Ile Val Pro Ile Ile Ala Ile Ala Gly Val Val Glu Met Lys Met
 865 870 875 880
 Leu Ser Gly Gln Ala Leu Lys Asp Lys Lys Glu Leu Glu Gly Ala Gly
 885 890 895
 5 Lys Ile Ala Thr Glu Ala Ile Glu Asn Phe Arg Thr Val Val Ser Leu
 900 905 910
 Thr Arg Glu Gln Lys Phe Glu Tyr Met Tyr Ala Gln Ser Leu Gln Val
 915 920 925
 Pro Tyr Arg Asn Ser Leu Arg Lys Ala His Ile Phe Gly Val Ser Phe
 930 935 940
 10 Ser Ile Thr Gln Ala Met Met Tyr Phe Ser Tyr Ala Gly Cys Phe Arg
 945 950 955 960
 Phe Gly Ala Tyr Leu Val Ala Asn Glu Phe Met Asn Phe Gln Asp Val
 965 970 975
 15 Leu Leu Val Phe Ser Ala Ile Val Phe Gly Ala Met Ala Val Gly Gln
 980 985 990
 Val Ser Ser Phe Ala Pro Asp Tyr Ala Lys Ala Lys Val Ser Ala Ala
 995 1000 1005
 His Val Ile Met Ile Ile Glu Lys Ser Pro Leu Ile Asp Ser Tyr Ser
 1010 1015 1020
 20 Pro His Gly Leu Lys Pro Asn Thr Leu Glu Gly Asn Val Thr Phe Asn
 1025 1030 1035 1040
 Glu Val Val Phe Asn Tyr Pro Thr Arg Pro Asp Ile Pro Val Leu Gln
 1045 1050 1055
 25 Gly Leu Ser Leu Glu Val Lys Lys Gly Gln Thr Leu Ala Leu Val Gly
 1060 1065 1070
 Ser Ser Gly Cys Gly Lys Ser Thr Val Val Gln Leu Leu Glu Arg Phe
 1075 1080 1085
 Tyr Asp Pro Leu Ala Gly Ser Val Leu Ile Asp Gly Lys Glu Ile Lys
 1090 1095 1100
 30 His Leu Asn Val Gln Trp Leu Arg Ala His Leu Gly Ile Val Ser Gln
 1105 1110 1115 1120
 Glu Pro Ile Leu Phe Asp Cys Ser Ile Ala Glu Asn Ile Ala Tyr Gly
 1125 1130 1135
 35 Asp Asn Ser Arg Val Val Ser His Glu Glu Ile Met Gln Ala Ala Lys
 1140 1145 1150
 Glu Ala Asn Ile His His Phe Ile Glu Thr Leu Pro Glu Lys Tyr Asn
 1155 1160 1165
 Thr Arg Val Gly Asp Lys Gly Thr Gln Leu Ser Gly Gly Gln Lys Gln
 1170 1175 1180
 40 Arg Ile Ala Ile Ala Arg Ala Leu Val Arg Gln Pro His Ile Leu Leu
 1185 1190 1195 1200
 Leu Asp Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser Glu Lys Val Val
 1205 1210 1215
 45 Gln Glu Ala Leu Asp Lys Ala Arg Glu Gly Arg Thr Cys Ile Val Ile
 1220 1225 1230
 Ala His Arg Leu Ser Thr Ile Gln Asn Ala Asp Leu Ile Val Val Phe
 1235 1240 1245
 Gln Asn Gly Lys Val Lys Glu His Gly Thr His Gln Gln Leu Leu Ala
 1250 1255 1260
 50 Gln Lys Gly Ile Tyr Phe Ser Met Val Ser Val Gln Ala Gly Ala Lys
 1265 1270 1275 1280
 Arg

55

<210> 3
 <211> 4317
 <212> DNA
 <213> Canis familiaris

60

<220>

<221> CDS

<222> (70)...(3912)

5 <400> 3
ctaagtcgga gtatcttctt cccaaattcc cttctcggtg gaggttgcca aggaaagccc 60
gaggtgacg atg gat cct gaa gga ggc cgt aag ggg agt gca gag aag aac 111
Met Asp Pro Glu Gly Gly Arg Lys Gly Ser Ala Glu Lys Asn
1 5 10

10 ttc tgg aaa atg ggc aaa aaa agt aaa aaa gag aag aaa gaa aag aaa 159
Phe Trp Lys Met Gly Lys Lys Ser Lys Lys Glu Lys Lys Glu Lys Lys
15 cca act gtc agc acg ttt gca atg ttt cgc tat tca aat tgg ctt gat 207
Pro Thr Val Ser Thr Phe Ala Met Phe Arg Tyr Ser Asn Trp Leu Asp
35 40 45

20 agg ttg tat atg ttg gtg ggg aca atg gct gcc atc atc cat gga gct 255
Arg Leu Tyr Met Leu Val Gly Thr Met Ala Ala Ile Ile His Gly Ala
50 55 60

25 gca ctc cct ctc atg atg ctg gtt ttt gga aac atg aca gat agc ttt 303
Ala Leu Pro Leu Met Met Leu Val Phe Gly Asn Met Thr Asp Ser Phe
65 70 75

30 gca aat gca gga att tca aga aac aaa act ttt cca gtt ata att aat 351
Ala Asn Ala Gly Ile Ser Arg Asn Lys Thr Phe Pro Val Ile Ile Asn
80 85 90

35 gaa agt att acg aac aat aca caa cat ttc atc aac cat ctg gag gag 399
Glu Ser Ile Thr Asn Asn Thr Gln His Phe Ile Asn His Leu Glu Glu
95 100 105 110

40 gaa atg acc acg tat gcc tat tat tac agt ggg atc ggt gct ggc gtg 447
Glu Met Thr Thr Tyr Ala Tyr Tyr Tyr Ser Gly Ile Gly Ala Gly Val
115 120 125

45 ctg gtg gct gct tac atc cag gtt tca ttc tgg tgc ctg gca gca gga 495
Leu Val Ala Ala Tyr Ile Gln Val Ser Phe Trp Cys Leu Ala Ala Gly
130 135 140

50 aga cag ata ctc aaa att aga aaa caa ttt ttt cat gct atc atg cga 543
Arg Gln Ile Leu Lys Ile Arg Lys Gln Phe Phe His Ala Ile Met Arg
145 150 155

55 cag gag att ggc tgg ttt gac gtg cat gac gtt ggg gag ctt aac acc 591
Gln Glu Ile Gly Trp Phe Asp Val His Asp Val Gly Glu Leu Asn Thr
160 165 170

60 cgg ctc aca gac gat gtc tcc aaa atc aat gaa gga att ggc gac aaa 639
Arg Leu Thr Asp Asp Val Ser Lys Ile Asn Glu Gly Ile Gly Asp Lys
175 180 185 190

65 gtt gga atg ttc ttt caa tca ata gca aca ttt ttc acc ggt ttt ata 687
Val Gly Met Phe Phe Gln Ser Ile Ala Thr Phe Phe Thr Gly Phe Ile
195 200 205

70 gtg ggg ttt aca cct ggt tgg aag cta acc ctt gtg att ttg gcc atc 735
Val Gly Phe Thr Pro Gly Trp Lys Leu Thr Leu Val Ile Leu Ala Ile

	210	215	220	
5	agc cct gtt ctt gga ctt tca gcc gcc atc tgg gca aag ata cta tct Ser Pro Val Leu Gly Leu Ser Ala Ala Ile Trp Ala Lys Ile Leu Ser 225 230 235	783		
10	tca ttt act gat aaa gaa ctc ttg gcc tat gca aaa gct gga gca gta Ser Phe Thr Asp Lys Glu Leu Leu Ala Tyr Ala Lys Ala Gly Ala Val 240 245 250	831		
15	gct gaa gaa gtc tta gca gca atc aga act gtg att gcc ttt gga gga Ala Glu Glu Val Leu Ala Ala Ile Arg Thr Val Ile Ala Phe Gly Gly 255 260 265 270	879		
20	caa aag aaa gaa ctt gaa agg tac aac aaa aat tta gaa gaa gct aaa Gln Lys Lys Glu Leu Glu Arg Tyr Asn Lys Asn Leu Glu Glu Ala Lys 275 280 285	927		
25	aga att ggg ata aag aaa gct atc acg gcc aac att tct att ggt gcc Arg Ile Gly Ile Lys Lys Ala Ile Thr Ala Asn Ile Ser Ile Gly Ala 290 295 300	975		
30	gct ttc tta ttg atc tat gca tca tat gct ctg gct ttc tgg tat ggg Ala Phe Leu Leu Ile Tyr Ala Ser Tyr Ala Leu Ala Phe Trp Tyr Gly 305 310 315	1023		
35	acc tcc ttg gtc ctc tcc agt gaa tat act att gga cag gta ctc act Thr Ser Leu Val Leu Ser Ser Glu Tyr Thr Ile Gly Gln Val Leu Thr 320 325 330	1071		
40	gtc ttc ttt tct gta tta att ggg gct ttt agt att gga cag gca tcc Val Phe Phe Ser Val Leu Ile Gly Ala Phe Ser Ile Gly Gln Ala Ser 335 340 345 350	1119		
45	cca agc att gaa gca ttt gca aac gca aga gga gca gct tat gaa atc Pro Ser Ile Glu Ala Phe Ala Asn Ala Arg Gly Ala Ala Tyr Glu Ile 355 360 365	1167		
50	ttc aag ata att gac aat aaa cca agc att gac agc tat tcg aag agt Phe Lys Ile Ile Asp Asn Lys Pro Ser Ile Asp Ser Tyr Ser Lys Ser 370 375 380	1215		
55	gga cat aaa cca gat aat att aag gga aat ttg gaa ttc aaa aat gtt Gly His Lys Pro Asp Asn Ile Lys Gly Asn Leu Glu Phe Lys Asn Val 385 390 395	1263		
60	cac ttc agt tac cct tct cga aaa gaa gtt aag atc tta aag ggt ctc His Phe Ser Tyr Pro Ser Arg Lys Glu Val Lys Ile Leu Lys Gly Leu 400 405 410	1311		
65	aac ctg aag gtt cag agt ggg cag aca gtg gcg ctg gtt ggg aac agt Asn Leu Lys Val Gln Ser Gly Gln Thr Val Ala Leu Val Gly Asn Ser 415 420 425 430	1359		
70	ggc tgc ggg aag agc acg acc gtg cag ctg atg cag agg ctc tat gac Gly Cys Gly Lys Ser Thr Thr Val Gln Leu Met Gln Arg Leu Tyr Asp 435 440 445	1407		
75	ccc aca gat ggc atg gtc tgt att gat gga cag gac att agg acc ata Pro Thr Asp Gly Met Val Cys Ile Asp Gly Gln Asp Ile Arg Thr Ile	1455		

	450							455							460							
5	aat	gta	agg	cat	ctt	cgg	gaa	att	act	ggt	gtg	gtg	agt	cag	gag	cct	1503					
	Asn	Val	Arg	His	Leu	Arg	Glu	Ile	Thr	Gly	Val	Val	Ser	Gln	Glu	Pro						
			465					470					475									
10	gtg	ttg	ttt	gcc	acc	acg	ata	gct	gaa	aac	att	cgc	tat	ggc	cgc	gaa	1551					
	Val	Leu	Phe	Ala	Thr	Thr	Ile	Ala	Glu	Asn	Ile	Arg	Tyr	Gly	Arg	Glu						
			480				485					490										
15	aat	gtc	acc	atg	gat	gag	att	gag	aaa	gct	gtt	aag	gaa	gcc	aat	gcc	1599					
	Asn	Val	Thr	Met	Asp	Glu	Ile	Glu	Lys	Ala	Val	Lys	Glu	Ala	Asn	Ala						
						500					505					510						
20	tat	gat	ttt	atc	atg	aaa	cta	cct	aat	aaa	ttt	gac	act	ctg	gtt	gga	1647					
	Tyr	Asp	Phe	Ile	Met	Lys	Leu	Pro	Asn	Lys	Phe	Asp	Thr	Leu	Val	Gly						
					515					520					525							
25	gag	aga	ggg	gcc	cgg	ctg	agt	ggt	gga	cag	aaa	cag	aga	atc	gcc	att	1695					
	Glu	Arg	Gly	Ala	Arg	Leu	Ser	Gly	Gly	Gln	Lys	Gln	Arg	Ile	Ala	Ile						
				530				535						540								
30	gct	cgg	gcc	ctg	gtt	cgc	aac	ccc	aag	att	ctt	ctg	ctg	gat	gag	gca	1743					
	Ala	Arg	Ala	Leu	Val	Arg	Asn	Pro	Lys	Ile	Leu	Leu	Leu	Asp	Glu	Ala						
			545					550					555									
35	acg	tca	gct	ctg	gac	act	gaa	agt	gaa	gca	gtg	gtt	cag	gtg	gcc	ctg	1791					
	Thr	Ser	Ala	Leu	Asp	Thr	Glu	Ser	Glu	Ala	Val	Val	Gln	Val	Ala	Leu						
		560					565					570										
40	gat	aag	gcc	aga	aaa	ggc	cgg	act	acc	att	gtg	ata	gct	cat	cgt	ttg	1839					
	Asp	Lys	Ala	Arg	Lys	Gly	Arg	Thr	Thr	Ile	Val	Ile	Ala	His	Arg	Leu						
						580					585					590						
45	tct	aca	gtt	cgt	aat	gcc	gat	gtc	att	gct	ggt	ttt	gat	gat	gga	gtc	1887					
	Ser	Thr	Val	Arg	Asn	Ala	Asp	Val	Ile	Ala	Gly	Phe	Asp	Asp	Gly	Val						
					595				600						605							
50	att	gtg	gag	aaa	gga	aat	cat	gat	gaa	ctc	atg	aaa	gag	aag	ggc	att	1935					
	Ile	Val	Glu	Lys	Gly	Asn	His	Asp	Glu	Leu	Met	Lys	Glu	Lys	Gly	Ile						
				610				615						620								
55	tac	ttc	aaa	ctt	gtc	aca	atg	cag	aca	aga	gga	aat	gaa	att	gag	tta	1983					
	Tyr	Phe	Lys	Leu	Val	Thr	Met	Gln	Thr	Arg	Gly	Asn	Glu	Ile	Glu	Leu						
			625					630					635									
60	gaa	aat	gcc	act	ggt	gaa	tcc	aaa	agt	gaa	agt	gat	gcc	ttg	gaa	atg	2031					
	Glu	Asn	Ala	Thr	Gly	Glu	Ser	Lys	Ser	Glu	Ser	Asp	Ala	Leu	Glu	Met						
			640				645					650										
65	tct	cca	aaa	gat	tca	ggg	tcc	agt	tta	ata	aaa	aga	aga	tca	act	cgc	2079					
	Ser	Pro	Lys	Asp	Ser	Gly	Ser	Ser	Leu	Ile	Lys	Arg	Arg	Ser	Thr	Arg						
						660					665					670						
70	agg	agt	ata	cat	gca	cca	caa	ggc	caa	gac	aga	aag	ctt	ggt	aca	aaa	2127					
	Arg	Ser	Ile	His	Ala	Pro	Gln	Gly	Gln	Asp	Arg	Lys	Leu	Gly	Thr	Lys						
					675					680					685							
75	gag	gac	ttg	aat	gag	aat	gtt	cct	tca	gtt	tcc	ttc	tgg	agg	att	ctg	2175					
	Glu	Asp	Leu	Asn	Glu	Asn	Val	Pro	Ser	Val	Ser	Phe	Trp	Arg	Ile	Leu						

	690	695	700	
5	aag ctg aac tca act gaa tgg cct tat ttt gtg gtt ggt ata ttt tgt Lys Leu Asn Ser Thr Glu Trp Pro Tyr Phe Val Val Gly Ile Phe Cys 705 710 715	2223		
10	gct att ata aac gga ggc ctg caa cca gca ttt tca ata ata ttt tca Ala Ile Ile Asn Gly Gly Leu Gln Pro Ala Phe Ser Ile Ile Phe Ser 720 725 730	2271		
15	agg att ata ggg atc ttt acc cga gat gag gat cct gaa aca aaa cga Arg Ile Ile Gly Ile Phe Thr Arg Asp Glu Asp Pro Glu Thr Lys Arg 735 740 745 750	2319		
20	cag aat agt aac atg ttt tct gta ttg ttt cta gtc ctt gga att att Gln Asn Ser Asn Met Phe Ser Val Leu Phe Leu Val Leu Gly Ile Ile 755 760 765	2367		
25	tct ttt att aca ttt ttc ctc cag ggc ttc aca ttt ggc aaa gct ggg Ser Phe Ile Thr Phe Phe Leu Gln Gly Phe Thr Phe Gly Lys Ala Gly 770 775 780	2415		
30	gag atc ctc act aag cgg ctt cga tac atg gtt ttc aga tcc atg ctg Glu Ile Leu Thr Lys Arg Leu Arg Tyr Met Val Phe Arg Ser Met Leu 785 790 795	2463		
35	aga cag gat gtc agc tgg ttt gat gac cct aaa aac acc act gga gca Arg Gln Asp Val Ser Trp Phe Asp Asp Pro Lys Asn Thr Thr Gly Ala 800 805 810	2511		
40	ttg aca acc agg ctt gcc aat gat gcg gct caa gtt aaa ggg gct ata Leu Thr Thr Arg Leu Ala Asn Asp Ala Ala Gln Val Lys Gly Ala Ile 815 820 825 830	2559		
45	ggc att att ata tcc tta atc tat ggt tgg caa tta aca ctt tta ctc Gly Ile Ile Ile Ser Leu Ile Tyr Gly Trp Gln Leu Thr Leu Leu Leu 850 855 860	2607		
50	ggt tcc agg ctt gct gtc att acc cag aat ata gca aat ctt ggg aca Gly Ser Arg Leu Ala Val Ile Thr Gln Asn Ile Ala Asn Leu Gly Thr 835 840 845	2655		
55	gga att att ata tcc tta atc tat ggt tgg caa tta aca ctt tta ctc Gly Ile Ile Ile Ser Leu Ile Tyr Gly Trp Gln Leu Thr Leu Leu Leu 850 855 860	2703		
60	tta gca att gta ccc atc att gca ata gca gga gtt gtt gaa atg aaa Leu Ala Ile Val Pro Ile Ile Ala Ile Ala Gly Val Val Glu Met Lys 865 870 875	2751		
65	atg ttg tct gga caa gca ctg aaa gat aag aaa gag cta gaa gga gct Met Leu Ser Gly Gln Ala Leu Lys Asp Lys Lys Glu Leu Glu Gly Ala 880 885 890	2799		
70	ggg aag att gct aca gaa gcc atc gaa aac ttc cga act gtt gtt tct Gly Lys Ile Ala Thr Glu Ala Ile Glu Asn Phe Arg Thr Val Val Ser 895 900 905 910	2847		
75	ttg act cgg gag cag aag ttt gaa tac atg tat gca cag agt ttg caa Leu Thr Arg Glu Gln Lys Phe Glu Tyr Met Tyr Ala Gln Ser Leu Gln 915 920 925	2895		
80	gta cca tac aga aac tct ttg agg aaa gca cac atc ttc ggg gtc tca Val Pro Tyr Arg Asn Ser Leu Arg Lys Ala His Ile Phe Gly Val Ser			

	930	935	940	
5	ttt tct atc acc cag gca atg atg tat ttt tcc tat gct ggc tgt ttc Phe Ser Ile Thr Gln Ala Met Met Tyr Phe Ser Tyr Ala Gly Cys Phe 945 950 955	2943		
10	cgg ttt ggt gcc tac ttg gtg gca aat gag ttc atg aac ttt cag gat Arg Phe Gly Ala Tyr Leu Val Ala Asn Glu Phe Met Asn Phe Gln Asp 960 965 970	2991		
15	gtt ctt ttg gta ttc tca gct att gtc ttt ggt gcc atg gca gtg ggg Val Leu Leu Val Phe Ser Ala Ile Val Phe Gly Ala Met Ala Val Gly 975 980 985 990	3039		
20	cag gtc agt tca ttt gct cct gac tat gcc aaa gcc aaa gta tca gca Gln Val Ser Ser Phe Ala Pro Asp Tyr Ala Lys Ala Lys Val Ser Ala 995 1000 1005	3087		
25	gcc cac gtc atc atg atc att gaa aaa agc cct ctg att gac agc tac Ala His Val Ile Met Ile Ile Glu Lys Ser Pro Leu Ile Asp Ser Tyr 1010 1015 1020	3135		
30	agc cct cac ggc ctc aag cca aat acg ttg gaa gga aat gtg aca ttt Ser Pro His Gly Leu Lys Pro Asn Thr Leu Glu Gly Asn Val Thr Phe 1025 1030 1035	3183		
35	aat gag gtc gtg ttc aac tat ccc act cga cca gac atc ccc gtg ctc Asn Glu Val Val Phe Asn Tyr Pro Thr Arg Pro Asp Ile Pro Val Leu 1040 1045 1050	3231		
40	cag ggg ctg agc ctc gag gtg aag aag ggc cag acg ctg gcc ctc gta Gln Gly Leu Ser Leu Glu Val Lys Lys Gly Gln Thr Leu Ala Leu Val 1055 1060 1065 1070	3279		
45	ggg agc agt ggc tgt ggg aag agc aca gtt gtt cag ctc cta gag cgc Gly Ser Ser Gly Cys Gly Lys Ser Thr Val Val Gln Leu Leu Glu Arg 1075 1080 1085	3327		
50	ttc tat gac ccc ttg gct ggt tca gtg cta att gat ggc aaa gag ata Phe Tyr Asp Pro Leu Ala Gly Ser Val Leu Ile Asp Gly Lys Glu Ile 1090 1095 1100	3375		
55	aag cac ctg aat gtc cag tgg ctc cga gca cac ctg ggc atc gtg tct Lys His Leu Asn Val Gln Trp Leu Arg Ala His Leu Gly Ile Val Ser 1105 1110 1115	3423		
60	cag gag ccc atc ctg ttt gac tgc agc att gcc gag aac att gcc tat Gln Glu Pro Ile Leu Phe Asp Cys Ser Ile Ala Glu Asn Ile Ala Tyr 1120 1125 1130	3471		
65	gga gac aac agc cgg gtc gta tca cat gaa gag att atg cag gca gcc Gly Asp Asn Ser Arg Val Val Ser His Glu Glu Ile Met Gln Ala Ala 1135 1140 1145 1150	3519		
70	aag gag gcc aac ata cac cac ttc atc gag aca ctc cct gag aaa tac Lys Glu Ala Asn Ile His His Phe Ile Glu Thr Leu Pro Glu Lys Tyr 1155 1160 1165	3567		
75	aac acc aga gta gga gac aaa gga acc cag ctc tct ggt ggc cag aaa Asn Thr Arg Val Gly Asp Lys Gly Thr Gln Leu Ser Gly Gly Gln Lys	3615		

	1170	1175	1180	
5	cag cgc att gcc ata gct cgc gct ctt gtt aga cag cct cat att ttg Gln Arg Ile Ala Ile Ala Arg Ala Leu Val Arg Gln Pro His Ile Leu 1185 1190 1195	3663		
10	ctt ttg gat gaa gct aca tca gct ctg gat aca gaa agt gaa aag gtt Leu Leu Asp Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser Glu Lys Val 1200 1205 1210	3711		
15	gtc caa gaa gcc ctg gac aaa gcc aga gaa ggc cgc acc tgc att gtg Val Gln Glu Ala Leu Asp Lys Ala Arg Glu Gly Arg Thr Cys Ile Val 1215 1220 1225 1230	3759		
20	atc gcc cac cgc ttg tcc acc atc cag aat gca gat tta ata gtg gtg Ile Ala His Arg Leu Ser Thr Ile Gln Asn Ala Asp Leu Ile Val Val 1235 1240 1245	3807		
25	ttt cag aat ggc aaa gtc aag gag cat ggc aca cat caa cag ctg ctg Phe Gln Asn Gly Lys Val Lys Glu His Gly Thr His Gln Gln Leu Leu 1250 1255 1260	3855		
30	gct cag aaa ggc atc tat ttt tcc atg atc agt gtc cag gct gga gca Ala Gln Lys Gly Ile Tyr Phe Ser Met Ile Ser Val Gln Ala Gly Ala 1265 1270 1275	3903		
35	aag cgc tag tgaactgtgg ccatatgagc tgttaaatat tttttaatat Lys Arg 1280	3952		
40	ttgtgttaaaa acatggcatt taatcaaagt taaaagggtga gcacttactg gaaaaactat gtagaactac ctgtttaaca tttcttgctg caactgaaga tcattccacc aagttcagag tcttcagatt ttataattaa aggaacccaaa agaaacatta tctgatggaa taaaatattg gtgttaattg cattataaaaa ttatagagta attcaaagta gattttgtta ataaattgta taatttttgt ttatatattta tttgtaactt actgctttgc tgaaagatta tagaagtggg aaaaagtact gaatgtttga ataaagtgct agctataata aaactaaact tttatatgaa aaaaa	4012 4072 4132 4192 4252 4312 4317		
45	<210> 4 <211> 1280 <212> PRT <213> Canis familiaris <400> 4			
50	Met Asp Pro Glu Gly Gly Arg Lys Gly Ser Ala Glu Lys Asn Phe Trp 1 5 10 15 Lys Met Gly Lys Lys Ser Lys Lys Glu Lys Lys Glu Lys Lys Pro Thr 20 25 30 Val Ser Thr Phe Ala Met Phe Arg Tyr Ser Asn Trp Leu Asp Arg Leu 35 40 45 Tyr Met Leu Val Gly Thr Met Ala Ala Ile Ile His Gly Ala Ala Leu 50 55 60 Pro Leu Met Met Leu Val Phe Gly Asn Met Thr Asp Ser Phe Ala Asn 65 70 75 80 Ala Gly Ile Ser Arg Asn Lys Thr Phe Pro Val Ile Ile Asn Glu Ser 85 90 95 Ile Thr Asn Asn Thr Gln His Phe Ile Asn His Leu Glu Glu Glu Met 100 105 110 Thr Thr Tyr Ala Tyr Tyr Tyr Ser Gly Ile Gly Ala Gly Val Leu Val 115 120 125			

	Ala	Ala	Tyr	Ile	Gln	Val	Ser	Phe	Trp	Cys	Leu	Ala	Ala	Gly	Arg	Gln
	130						135				140					
	Ile	Leu	Lys	Ile	Arg	Lys	Gln	Phe	Phe	His	Ala	Ile	Met	Arg	Gln	Glu
	145					150					155					160
5	Ile	Gly	Trp	Phe	Asp	Val	His	Asp	Val	Gly	Glu	Leu	Asn	Thr	Arg	Leu
					165					170					175	
	Thr	Asp	Asp	Val	Ser	Lys	Ile	Asn	Glu	Gly	Ile	Gly	Asp	Lys	Val	Gly
				180					185					190		
10	Met	Phe	Phe	Gln	Ser	Ile	Ala	Thr	Phe	Phe	Thr	Gly	Phe	Ile	Val	Gly
			195					200					205			
	Phe	Thr	Pro	Gly	Trp	Lys	Leu	Thr	Leu	Val	Ile	Leu	Ala	Ile	Ser	Pro
	210					215						220				
	Val	Leu	Gly	Leu	Ser	Ala	Ala	Ile	Trp	Ala	Lys	Ile	Leu	Ser	Ser	Phe
	225					230					235					240
15	Thr	Asp	Lys	Glu	Leu	Leu	Ala	Tyr	Ala	Lys	Ala	Gly	Ala	Val	Ala	Glu
					245					250					255	
	Glu	Val	Leu	Ala	Ala	Ile	Arg	Thr	Val	Ile	Ala	Phe	Gly	Gly	Gln	Lys
				260					265					270		
20	Lys	Glu	Leu	Glu	Arg	Tyr	Asn	Lys	Asn	Leu	Glu	Glu	Ala	Lys	Arg	Ile
		275					280						285			
	Gly	Ile	Lys	Lys	Ala	Ile	Thr	Ala	Asn	Ile	Ser	Ile	Gly	Ala	Ala	Phe
	290						295					300				
	Leu	Leu	Ile	Tyr	Ala	Ser	Tyr	Ala	Leu	Ala	Phe	Trp	Tyr	Gly	Thr	Ser
	305					310					315					320
25	Leu	Val	Leu	Ser	Ser	Glu	Tyr	Thr	Ile	Gly	Gln	Val	Leu	Thr	Val	Phe
					325					330					335	
	Phe	Ser	Val	Leu	Ile	Gly	Ala	Phe	Ser	Ile	Gly	Gln	Ala	Ser	Pro	Ser
			340					345					350			
30	Ile	Glu	Ala	Phe	Ala	Asn	Ala	Arg	Gly	Ala	Ala	Tyr	Glu	Ile	Phe	Lys
		355					360					365				
	Ile	Ile	Asp	Asn	Lys	Pro	Ser	Ile	Asp	Ser	Tyr	Ser	Lys	Ser	Gly	His
	370					375						380				
	Lys	Pro	Asp	Asn	Ile	Lys	Gly	Asn	Leu	Glu	Phe	Lys	Asn	Val	His	Phe
	385				390						395					400
35	Ser	Tyr	Pro	Ser	Arg	Lys	Glu	Val	Lys	Ile	Leu	Lys	Gly	Leu	Asn	Leu
					405					410					415	
	Lys	Val	Gln	Ser	Gly	Gln	Thr	Val	Ala	Leu	Val	Gly	Asn	Ser	Gly	Cys
			420					425					430			
40	Gly	Lys	Ser	Thr	Thr	Val	Gln	Leu	Met	Gln	Arg	Leu	Tyr	Asp	Pro	Thr
		435						440				445				
	Asp	Gly	Met	Val	Cys	Ile	Asp	Gly	Gln	Asp	Ile	Arg	Thr	Ile	Asn	Val
	450						455				460					
	Arg	His	Leu	Arg	Glu	Ile	Thr	Gly	Val	Val	Ser	Gln	Glu	Pro	Val	Leu
	465				470						475					480
45	Phe	Ala	Thr	Thr	Ile	Ala	Glu	Asn	Ile	Arg	Tyr	Gly	Arg	Glu	Asn	Val
					485					490					495	
	Thr	Met	Asp	Glu	Ile	Glu	Lys	Ala	Val	Lys	Glu	Ala	Asn	Ala	Tyr	Asp
			500					505					510			
50	Phe	Ile	Met	Lys	Leu	Pro	Asn	Lys	Phe	Asp	Thr	Leu	Val	Gly	Glu	Arg
		515					520					525				
	Gly	Ala	Arg	Leu	Ser	Gly	Gly	Gln	Lys	Gln	Arg	Ile	Ala	Ile	Ala	Arg
	530					535					540					
	Ala	Leu	Val	Arg	Asn	Pro	Lys	Ile	Leu	Leu	Leu	Asp	Glu	Ala	Thr	Ser
	545				550						555					560
55	Ala	Leu	Asp	Thr	Glu	Ser	Glu	Ala	Val	Val	Gln	Val	Ala	Leu	Asp	Lys
					565					570					575	
	Ala	Arg	Lys	Gly	Arg	Thr	Thr	Ile	Val	Ile	Ala	His	Arg	Leu	Ser	Thr
			580					585				590				
60	Val	Arg	Asn	Ala	Asp	Val	Ile	Ala	Gly	Phe	Asp	Asp	Gly	Val	Ile	Val
			595					600					605			

	Glu	Lys	Gly	Asn	His	Asp	Glu	Leu	Met	Lys	Glu	Lys	Gly	Ile	Tyr	Phe	
	610						615				620						
	Lys	Leu	Val	Thr	Met	Gln	Thr	Arg	Gly	Asn	Glu	Ile	Glu	Leu	Glu	Asn	
	625					630				635						640	
5	Ala	Thr	Gly	Glu	Ser	Lys	Ser	Glu	Ser	Asp	Ala	Leu	Glu	Met	Ser	Pro	
					645					650					655		
	Lys	Asp	Ser	Gly	Ser	Ser	Leu	Ile	Lys	Arg	Arg	Ser	Thr	Arg	Arg	Ser	
				660					665					670			
10	Ile	His	Ala	Pro	Gln	Gly	Gln	Asp	Arg	Lys	Leu	Gly	Thr	Lys	Glu	Asp	
			675					680					685				
	Leu	Asn	Glu	Asn	Val	Pro	Ser	Val	Ser	Phe	Trp	Arg	Ile	Leu	Lys	Leu	
	690						695					700					
	Asn	Ser	Thr	Glu	Trp	Pro	Tyr	Phe	Val	Val	Gly	Ile	Phe	Cys	Ala	Ile	
	705				710						715					720	
15	Ile	Asn	Gly	Gly	Leu	Gln	Pro	Ala	Phe	Ser	Ile	Ile	Phe	Ser	Arg	Ile	
					725					730					735		
	Ile	Gly	Ile	Phe	Thr	Arg	Asp	Glu	Asp	Pro	Glu	Thr	Lys	Arg	Gln	Asn	
				740				745						750			
20	Ser	Asn	Met	Phe	Ser	Val	Leu	Phe	Leu	Val	Leu	Gly	Ile	Ile	Ser	Phe	
			755					760					765				
	Ile	Thr	Phe	Phe	Leu	Gln	Gly	Phe	Thr	Phe	Gly	Lys	Ala	Gly	Glu	Ile	
			770				775					780					
	Leu	Thr	Lys	Arg	Leu	Arg	Tyr	Met	Val	Phe	Arg	Ser	Met	Leu	Arg	Gln	
	785					790					795					800	
25	Asp	Val	Ser	Trp	Phe	Asp	Asp	Pro	Lys	Asn	Thr	Thr	Gly	Ala	Leu	Thr	
					805					810					815		
	Thr	Arg	Leu	Ala	Asn	Asp	Ala	Ala	Gln	Val	Lys	Gly	Ala	Ile	Gly	Ser	
				820					825					830			
30	Arg	Leu	Ala	Val	Ile	Thr	Gln	Asn	Ile	Ala	Asn	Leu	Gly	Thr	Gly	Ile	
			835					840					845				
	Ile	Ile	Ser	Leu	Ile	Tyr	Gly	Trp	Gln	Leu	Thr	Leu	Leu	Leu	Leu	Ala	
			850				855					860					
	Ile	Val	Pro	Ile	Ile	Ala	Ile	Ala	Gly	Val	Val	Glu	Met	Lys	Met	Leu	
	865					870					875					880	
35	Ser	Gly	Gln	Ala	Leu	Lys	Asp	Lys	Lys	Glu	Leu	Glu	Gly	Ala	Gly	Lys	
					885					890					895		
	Ile	Ala	Thr	Glu	Ala	Ile	Glu	Asn	Phe	Arg	Thr	Val	Val	Ser	Leu	Thr	
				900				905						910			
40	Arg	Glu	Gln	Lys	Phe	Glu	Tyr	Met	Tyr	Ala	Gln	Ser	Leu	Gln	Val	Pro	
				915				920					925				
	Tyr	Arg	Asn	Ser	Leu	Arg	Lys	Ala	His	Ile	Phe	Gly	Val	Ser	Phe	Ser	
							935					940					
	Ile	Thr	Gln	Ala	Met	Met	Tyr	Phe	Ser	Tyr	Ala	Gly	Cys	Phe	Arg	Phe	
	945					950					955					960	
45	Gly	Ala	Tyr	Leu	Val	Ala	Asn	Glu	Phe	Met	Asn	Phe	Gln	Asp	Val	Leu	
					965					970					975		
	Leu	Val	Phe	Ser	Ala	Ile	Val	Phe	Gly	Ala	Met	Ala	Val	Gly	Gln	Val	
				980					985					990			
50	Ser	Ser	Phe	Ala	Pro	Asp	Tyr	Ala	Lys	Ala	Lys	Val	Ser	Ala	Ala	His	
				995				1000					1005				
	Val	Ile	Met	Ile	Ile	Glu	Lys	Ser	Pro	Leu	Ile	Asp	Ser	Tyr	Ser	Pro	
						1010		1015				1020					
	His	Gly	Leu	Lys	Pro	Asn	Thr	Leu	Glu	Gly	Asn	Val	Thr	Phe	Asn	Glu	
	1025					1030					1035					1040	
55	Val	Val	Phe	Asn	Tyr	Pro	Thr	Arg	Pro	Asp	Ile	Pro	Val	Leu	Gln	Gly	
					1045					1050					1055		
	Leu	Ser	Leu	Glu	Val	Lys	Lys	Gly	Gln	Thr	Leu	Ala	Leu	Val	Gly	Ser	
				1060				1065					1070				
60	Ser	Gly	Cys	Gly	Lys	Ser	Thr	Val	Val	Gln	Leu	Leu	Glu	Arg	Phe	Tyr	
				1075				1080					1085				

	Asp Pro Leu Ala Gly Ser Val Leu Ile Asp Gly Lys Glu Ile Lys His	
	1090 1095 1100	
	Leu Asn Val Gln Trp Leu Arg Ala His Leu Gly Ile Val Ser Gln Glu	
	1105 1110 1115 1120	
5	Pro Ile Leu Phe Asp Cys Ser Ile Ala Glu Asn Ile Ala Tyr Gly Asp	
	1125 1130 1135	
	Asn Ser Arg Val Val Ser His Glu Glu Ile Met Gln Ala Ala Lys Glu	
	1140 1145 1150	
10	Ala Asn Ile His His Phe Ile Glu Thr Leu Pro Glu Lys Tyr Asn Thr	
	1155 1160 1165	
	Arg Val Gly Asp Lys Gly Thr Gln Leu Ser Gly Gly Gln Lys Gln Arg	
	1170 1175 1180	
	Ile Ala Ile Ala Arg Ala Leu Val Arg Gln Pro His Ile Leu Leu Leu	
	1185 1190 1195 1200	
15	Asp Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser Glu Lys Val Val Gln	
	1205 1210 1215	
	Glu Ala Leu Asp Lys Ala Arg Glu Gly Arg Thr Cys Ile Val Ile Ala	
	1220 1225 1230	
20	His Arg Leu Ser Thr Ile Gln Asn Ala Asp Leu Ile Val Val Phe Gln	
	1235 1240 1245	
	Asn Gly Lys Val Lys Glu His Gly Thr His Gln Gln Leu Leu Ala Gln	
	1250 1255 1260	
	Lys Gly Ile Tyr Phe Ser Met Ile Ser Val Gln Ala Gly Ala Lys Arg	
	1265 1270 1275 1280	
25	<210> 5	
	<211> 1107	
	<212> DNA	
	<213> Canis familiaris	
30	<220>	
	<221> CDS	
	<222> (1)...(1107)	
35	<400> 5	
	acg tca gct ctg gac act gaa agt gaa gca gtg gtt cag gtg gcc ctg	48
	Thr Ser Ala Leu Asp Thr Glu Ser Glu Ala Val Val Gln Val Ala Leu	
	1 5 10 15	
40	gat aag gcc aga aaa ggc cgg act acc att gtg ata gct cat cgt ttg	96
	Asp Lys Ala Arg Lys Gly Arg Thr Thr Ile Val Ile Ala His Arg Leu	
	20 25 30	
45	tct aca gtt cgt aat gcc gat gtc att gct ggt ttt gat gat gga gtc	144
	Ser Thr Val Arg Asn Ala Asp Val Ile Ala Gly Phe Asp Asp Gly Val	
	35 40 45	
50	att gtg gag aaa gga aat cat gat gaa ctc atg aaa gag aaa ggc att	192
	Ile Val Glu Lys Gly Asn His Asp Glu Leu Met Lys Glu Lys Gly Ile	
	50 55 60	
55	tac ttc aaa ctt gtc aca atg cag aca aga gga aat gaa att gac tta	240
	Tyr Phe Lys Leu Val Thr Met Gln Thr Arg Gly Asn Glu Ile Asp Leu	
	65 70 75 80	
	gaa aat gcc act ggt gaa tcc aaa agt gaa agt gat gcc ttg gaa atg	288
	Glu Asn Ala Thr Gly Glu Ser Lys Ser Glu Ser Asp Ala Leu Glu Met	
	85 90 95	
60	tct cca aaa gat tca ggg tcc agt tta ata aaa aga aga tca act cgc	336

	Ser	Pro	Lys	Asp	Ser	Gly	Ser	Ser	Leu	Ile	Lys	Arg	Arg	Ser	Thr	Arg	
				100					105					110			
5	agg	agt	ata	cat	gca	cca	caa	ggc	caa	gac	aga	aag	ctt	ggg	aca	aaa	384
	Arg	Ser	Ile	His	Ala	Pro	Gln	Gly	Gln	Asp	Arg	Lys	Leu	Gly	Thr	Lys	
			115				120						125				
10	gag	gac	ttg	aat	gag	aat	gta	cct	cca	gtt	tcc	ttc	tgg	agg	att	ctg	432
	Glu	Asp	Leu	Asn	Glu	Asn	Val	Pro	Pro	Val	Ser	Phe	Trp	Arg	Ile	Leu	
			130				135						140				
15	aag	ctg	aac	tca	act	gaa	tgg	cct	tat	ttt	gtg	gtt	ggg	ata	ttt	tgt	480
	Lys	Leu	Asn	Ser	Thr	Glu	Trp	Pro	Tyr	Phe	Val	Val	Gly	Ile	Phe	Cys	
	145					150					155					160	
	gct	att	ata	aac	gga	ggc	ctg	cag	cca	gca	ttt	tca	ata	ata	ttt	tca	528
	Ala	Ile	Ile	Asn	Gly	Gly	Leu	Gln	Pro	Ala	Phe	Ser	Ile	Ile	Phe	Ser	
				165						170						175	
20	agg	att	ata	ggg	atc	ttt	acc	cga	gat	gag	gat	cct	gaa	aca	aaa	cga	576
	Arg	Ile	Ile	Gly	Ile	Phe	Thr	Arg	Asp	Glu	Asp	Pro	Glu	Thr	Lys	Arg	
				180					185					190			
25	cag	att	agt	aac	atg	ttt	tct	gta	ttg	ttt	cta	gtc	ctt	gga	att	att	624
	Gln	Ile	Ser	Asn	Met	Phe	Ser	Val	Leu	Phe	Leu	Val	Leu	Gly	Ile	Ile	
			195					200					205				
30	tct	ttt	att	aca	ttt	ttc	ctt	cag	ggg	ttc	aca	ttt	ggc	aaa	gct	gga	672
	Ser	Phe	Ile	Thr	Phe	Phe	Leu	Gln	Gly	Phe	Thr	Phe	Gly	Lys	Ala	Gly	
		210					215					220					
35	gag	atc	ctc	act	aag	cgg	ctt	cga	tac	atg	gtt	ttc	aga	tcc	atg	ctg	720
	Glu	Ile	Leu	Thr	Lys	Arg	Leu	Arg	Tyr	Met	Val	Phe	Arg	Ser	Met	Leu	
	225					230					235					240	
	aga	cag	gat	gtc	agc	tgg	ttt	gat	gac	ctt	aaa	aac	acc	act	gga	gca	768
	Arg	Gln	Asp	Val	Ser	Trp	Phe	Asp	Asp	Leu	Lys	Asn	Thr	Thr	Gly	Ala	
				245						250					255		
40	ttg	acc	acc	agg	ctt	gcc	aat	gat	gct	gct	caa	gtt	aaa	ggg	gct	ata	816
	Leu	Thr	Thr	Arg	Leu	Ala	Asn	Asp	Ala	Ala	Gln	Val	Lys	Gly	Ala	Ile	
				260					265					270			
45	ggg	tcc	agg	ctt	gct	gtc	att	acc	cag	aat	ata	gca	aat	ctt	ggg	aca	864
	Gly	Ser	Arg	Leu	Ala	Val	Ile	Thr	Gln	Asn	Ile	Ala	Asn	Leu	Gly	Thr	
			275					280					285				
50	ggc	att	att	ata	tcc	tta	atc	tat	ggg	tgg	caa	tta	aca	ctt	tta	ctc	912
	Gly	Ile	Ile	Ile	Ser	Leu	Ile	Tyr	Gly	Trp	Gln	Leu	Thr	Leu	Leu	Leu	
		290					295					300					
55	tta	gca	att	gta	ccc	atc	att	gca	ata	gca	gga	gtt	gtt	gaa	atg	aaa	960
	Leu	Ala	Ile	Val	Pro	Ile	Ile	Ala	Ile	Ala	Gly	Val	Val	Glu	Met	Lys	
	305					310					315					320	
	atg	ttg	tct	gga	caa	gca	ctg	aaa	gat	aag	aaa	gag	cta	gaa	gga	gct	1008
	Met	Leu	Ser	Gly	Gln	Ala	Leu	Lys	Asp	Lys	Lys	Glu	Leu	Glu	Gly	Ala	
				325						330					335		
60	ggg	aag	att	gct	aca	gaa	gcc	atc	gaa	aac	ttc	cga	act	gtt	gtt	tct	1056

	Gly	Lys	Ile	Ala	Thr	Glu	Ala	Ile	Glu	Asn	Phe	Arg	Thr	Val	Val	Ser	
				340					345					350			
	ttg	act	cag	gag	cag	aag	ttt	gaa	cac	atg	tat	gca	cag	agt	ttg	cag	1104
5	Leu	Thr	Gln	Glu	Gln	Lys	Phe	Glu	His	Met	Tyr	Ala	Gln	Ser	Leu	Gln	
			355					360					365				
	gta																1107
10	<210> 6																
	<211> 368																
	<212> PRT																
	<213> Canis familiaris																
15	<400> 6																
	Thr	Ser	Ala	Leu	Asp	Thr	Glu	Ser	Glu	Ala	Val	Val	Gln	Val	Ala	Leu	
	1				5					10					15		
	Asp	Lys	Ala	Arg	Lys	Gly	Arg	Thr	Thr	Ile	Val	Ile	Ala	His	Arg	Leu	
				20					25					30			
20	Ser	Thr	Val	Arg	Asn	Ala	Asp	Val	Ile	Ala	Gly	Phe	Asp	Asp	Gly	Val	
			35				40						45				
	Ile	Val	Glu	Lys	Gly	Asn	His	Asp	Glu	Leu	Met	Lys	Glu	Lys	Gly	Ile	
		50				55						60					
	Tyr	Phe	Lys	Leu	Val	Thr	Met	Gln	Thr	Arg	Gly	Asn	Glu	Ile	Asp	Leu	
25	65					70				75					80		
	Glu	Asn	Ala	Thr	Gly	Glu	Ser	Lys	Ser	Glu	Ser	Asp	Ala	Leu	Glu	Met	
					85				90					95			
	Ser	Pro	Lys	Asp	Ser	Gly	Ser	Ser	Leu	Ile	Lys	Arg	Arg	Ser	Thr	Arg	
				100					105					110			
30	Arg	Ser	Ile	His	Ala	Pro	Gln	Gly	Gln	Asp	Arg	Lys	Leu	Gly	Thr	Lys	
			115				120						125				
	Glu	Asp	Leu	Asn	Glu	Asn	Val	Pro	Pro	Val	Ser	Phe	Trp	Arg	Ile	Leu	
		130				135					140						
	Lys	Leu	Asn	Ser	Thr	Glu	Trp	Pro	Tyr	Phe	Val	Val	Gly	Ile	Phe	Cys	
35	145					150					155				160		
	Ala	Ile	Ile	Asn	Gly	Gly	Leu	Gln	Pro	Ala	Phe	Ser	Ile	Ile	Phe	Ser	
				165					170						175		
	Arg	Ile	Ile	Gly	Ile	Phe	Thr	Arg	Asp	Glu	Asp	Pro	Glu	Thr	Lys	Arg	
				180				185					190				
40	Gln	Ile	Ser	Asn	Met	Phe	Ser	Val	Leu	Phe	Leu	Val	Leu	Gly	Ile	Ile	
		195				200						205					
	Ser	Phe	Ile	Thr	Phe	Phe	Leu	Gln	Gly	Phe	Thr	Phe	Gly	Lys	Ala	Gly	
		210				215						220					
	Glu	Ile	Leu	Thr	Lys	Arg	Leu	Arg	Tyr	Met	Val	Phe	Arg	Ser	Met	Leu	
45	225					230					235				240		
	Arg	Gln	Asp	Val	Ser	Trp	Phe	Asp	Asp	Leu	Lys	Asn	Thr	Thr	Gly	Ala	
				245						250					255		
	Leu	Thr	Thr	Arg	Leu	Ala	Asn	Asp	Ala	Ala	Gln	Val	Lys	Gly	Ala	Ile	
				260				265						270			
50	Gly	Ser	Arg	Leu	Ala	Val	Ile	Thr	Gln	Asn	Ile	Ala	Asn	Leu	Gly	Thr	
		275					280						285				
	Gly	Ile	Ile	Ile	Ser	Leu	Ile	Tyr	Gly	Trp	Gln	Leu	Thr	Leu	Leu	Leu	
		290				295						300					
	Leu	Ala	Ile	Val	Pro	Ile	Ile	Ala	Ile	Ala	Gly	Val	Val	Glu	Met	Lys	
55	305					310					315				320		
	Met	Leu	Ser	Gly	Gln	Ala	Leu	Lys	Asp	Lys	Lys	Glu	Leu	Glu	Gly	Ala	
				325					330					335			
	Gly	Lys	Ile	Ala	Thr	Glu	Ala	Ile	Glu	Asn	Phe	Arg	Thr	Val	Val	Ser	
				340				345					350				
60	Leu	Thr	Gln	Glu	Gln	Lys	Phe	Glu	His	Met	Tyr	Ala	Gln	Ser	Leu	Gln	

355

360

365

<210> 7

<211> 1280

5

<212> PRT

<213> Homo sapiens

<400> 7

10	Met	Asp	Leu	Glu	Gly	Asp	Arg	Asn	Gly	Gly	Ala	Lys	Lys	Lys	Asn	Phe
	1				5					10					15	
	Phe	Lys	Leu	Asn	Asn	Lys	Ser	Glu	Lys	Asp	Lys	Lys	Glu	Lys	Lys	Pro
				20					25					30		
	Thr	Val	Ser	Val	Phe	Ser	Met	Phe	Arg	Tyr	Ser	Asn	Trp	Leu	Asp	Lys
			35					40					45			
15	Leu	Tyr	Met	Val	Val	Gly	Thr	Leu	Ala	Ala	Ile	Ile	His	Gly	Ala	Gly
		50					55					60				
	Leu	Pro	Leu	Met	Met	Leu	Val	Phe	Gly	Glu	Met	Thr	Asp	Ile	Phe	Ala
	65					70				75						80
20	Asn	Ala	Gly	Asn	Leu	Glu	Asp	Leu	Met	Ser	Asn	Ile	Thr	Asn	Arg	Ser
				85						90					95	
	Asp	Ile	Asn	Asp	Thr	Gly	Phe	Phe	Met	Asn	Leu	Glu	Glu	Asp	Met	Thr
				100					105					110		
	Arg	Tyr	Ala	Tyr	Tyr	Tyr	Ser	Gly	Ile	Gly	Ala	Gly	Val	Leu	Val	Ala
			115					120					125			
25	Ala	Tyr	Ile	Gln	Val	Ser	Phe	Trp	Cys	Leu	Ala	Ala	Gly	Arg	Gln	Ile
		130					135						140			
	His	Lys	Ile	Arg	Lys	Gln	Phe	Phe	His	Ala	Ile	Met	Arg	Gln	Glu	Ile
	145					150					155					160
	Gly	Trp	Phe	Asp	Val	His	Asp	Val	Gly	Glu	Leu	Asn	Thr	Arg	Leu	Thr
30					165					170					175	
	Asp	Asp	Val	Ser	Lys	Ile	Asn	Glu	Val	Ile	Gly	Asp	Lys	Ile	Gly	Met
				180					185					190		
	Phe	Phe	Gln	Ser	Met	Ala	Thr	Phe	Phe	Thr	Gly	Phe	Ile	Val	Gly	Phe
			195					200					205			
35	Thr	Arg	Gly	Trp	Lys	Leu	Thr	Leu	Val	Ile	Leu	Ala	Ile	Ser	Pro	Val
		210					215					220				
	Leu	Gly	Leu	Ser	Ala	Ala	Val	Trp	Ala	Lys	Ile	Leu	Ser	Ser	Phe	Thr
	225					230					235					240
	Asp	Lys	Glu	Leu	Leu	Ala	Tyr	Ala	Lys	Ala	Gly	Ala	Val	Ala	Glu	Glu
40					245					250					255	
	Val	Leu	Ala	Ala	Ile	Arg	Thr	Val	Ile	Ala	Phe	Gly	Gly	Gln	Lys	Lys
				260					265					270		
	Glu	Leu	Glu	Arg	Tyr	Asn	Lys	Asn	Leu	Glu	Glu	Ala	Lys	Arg	Ile	Gly
			275					280					285			
45	Ile	Lys	Lys	Ala	Ile	Thr	Ala	Asn	Ile	Ser	Ile	Gly	Ala	Ala	Phe	Leu
		290					295					300				
	Leu	Ile	Tyr	Ala	Ser	Tyr	Ala	Leu	Ala	Phe	Trp	Tyr	Gly	Thr	Thr	Leu
	305					310					315					320
	Val	Leu	Ser	Gly	Glu	Tyr	Ser	Ile	Gly	Gln	Val	Leu	Thr	Val	Phe	Phe
50					325					330					335	
	Ser	Val	Leu	Ile	Gly	Ala	Phe	Ser	Val	Gly	Gln	Ala	Ser	Pro	Ser	Ile
				340					345					350		
	Glu	Ala	Phe	Ala	Asn	Ala	Arg	Gly	Ala	Ala	Tyr	Glu	Ile	Phe	Lys	Ile
			355					360					365			
55	Ile	Asp	Asn	Lys	Pro	Ser	Ile	Asp	Ser	Tyr	Ser	Lys	Ser	Gly	His	Lys
		370					375					380				
	Pro	Asp	Asn	Ile	Lys	Gly	Asn	Leu	Glu	Phe	Arg	Asn	Val	His	Phe	Ser
	385					390					395					400
	Tyr	Pro	Ser	Arg	Lys	Glu	Val	Lys	Ile	Leu	Lys	Gly	Leu	Asn	Leu	Lys
60					405					410					415	

	Val	Gln	Ser	Gly	Gln	Thr	Val	Ala	Leu	Val	Gly	Asn	Ser	Gly	Cys	Gly
				420					425					430		
	Lys	Ser	Thr	Thr	Val	Gln	Leu	Met	Gln	Arg	Leu	Tyr	Asp	Pro	Thr	Glu
				435				440					445			
5	Gly	Met	Val	Ser	Val	Asp	Gly	Gln	Asp	Ile	Arg	Thr	Ile	Asn	Val	Arg
				450			455					460				
	Phe	Leu	Arg	Glu	Ile	Ile	Gly	Val	Val	Ser	Gln	Glu	Pro	Val	Leu	Phe
	465					470					475					480
10	Ala	Thr	Thr	Ile	Ala	Glu	Asn	Ile	Arg	Tyr	Gly	Arg	Glu	Asn	Val	Thr
					485					490					495	
	Met	Asp	Glu	Ile	Glu	Lys	Ala	Val	Lys	Glu	Ala	Asn	Ala	Tyr	Asp	Phe
				500					505					510		
	Ile	Met	Lys	Leu	Pro	His	Lys	Phe	Asp	Thr	Leu	Val	Gly	Glu	Arg	Gly
				515				520					525			
15	Ala	Gln	Leu	Ser	Gly	Gly	Gln	Lys	Gln	Arg	Ile	Ala	Ile	Ala	Arg	Ala
				530			535					540				
	Leu	Val	Arg	Asn	Pro	Lys	Ile	Leu	Leu	Leu	Asp	Glu	Ala	Thr	Ser	Ala
	545					550					555					560
20	Leu	Asp	Thr	Glu	Ser	Glu	Ala	Val	Val	Gln	Val	Ala	Leu	Asp	Lys	Ala
					565					570					575	
	Arg	Lys	Gly	Arg	Thr	Thr	Ile	Val	Ile	Ala	His	Arg	Leu	Ser	Thr	Val
					580				585					590		
	Arg	Asn	Ala	Asp	Val	Ile	Ala	Gly	Phe	Asp	Asp	Gly	Val	Ile	Val	Glu
				595				600					605			
25	Lys	Gly	Asn	His	Asp	Glu	Leu	Met	Lys	Glu	Lys	Gly	Ile	Tyr	Phe	Lys
				610			615					620				
	Leu	Val	Thr	Met	Gln	Thr	Ala	Gly	Asn	Glu	Val	Glu	Leu	Glu	Asn	Ala
	625					630					635					640
30	Ala	Asp	Glu	Ser	Lys	Ser	Glu	Ile	Asp	Ala	Leu	Glu	Met	Ser	Ser	Asn
					645					650					655	
	Asp	Ser	Arg	Ser	Ser	Leu	Ile	Arg	Lys	Arg	Ser	Thr	Arg	Arg	Ser	Val
					660				665					670		
	Arg	Gly	Ser	Gln	Ala	Gln	Asp	Arg	Lys	Leu	Ser	Thr	Lys	Glu	Ala	Leu
				675				680					685			
35	Asp	Glu	Ser	Ile	Pro	Pro	Val	Ser	Phe	Trp	Arg	Ile	Met	Lys	Leu	Asn
				690			695					700				
	Leu	Thr	Glu	Trp	Pro	Tyr	Phe	Val	Val	Gly	Val	Phe	Cys	Ala	Ile	Ile
	705					710					715					720
40	Asn	Gly	Gly	Leu	Gln	Pro	Ala	Phe	Ala	Ile	Ile	Phe	Ser	Lys	Ile	Ile
					725						730				735	
	Gly	Val	Phe	Thr	Arg	Ile	Asp	Asp	Pro	Glu	Thr	Lys	Arg	Gln	Asn	Ser
				740					745					750		
	Asn	Leu	Phe	Ser	Leu	Leu	Phe	Leu	Ala	Leu	Gly	Ile	Ile	Ser	Phe	Ile
				755				760					765			
45	Thr	Phe	Phe	Leu	Gln	Gly	Phe	Thr	Phe	Gly	Lys	Ala	Gly	Glu	Ile	Leu
				770			775					780				
	Thr	Lys	Arg	Leu	Arg	Tyr	Met	Val	Phe	Arg	Ser	Met	Leu	Arg	Gln	Asp
	785					790					795					800
50	Val	Ser	Trp	Phe	Asp	Asp	Pro	Lys	Asn	Thr	Thr	Gly	Ala	Leu	Thr	Thr
					805					810					815	
	Arg	Leu	Ala	Asn	Asp	Ala	Ala	Gln	Val	Lys	Gly	Ala	Ile	Gly	Ser	Arg
				820					825					830		
	Leu	Ala	Val	Ile	Thr	Gln	Asn	Ile	Ala	Asn	Leu	Gly	Thr	Gly	Ile	Ile
				835				840					845			
55	Ile	Ser	Phe	Ile	Tyr	Gly	Trp	Gln	Leu	Thr	Leu	Leu	Leu	Leu	Ala	Ile
				850			855					860				
	Val	Pro	Ile	Ile	Ala	Ile	Ala	Gly	Val	Val	Glu	Met	Lys	Met	Leu	Ser
	865					870					875					880
60	Gly	Gln	Ala	Leu	Lys	Asp	Lys	Lys	Glu	Leu	Glu	Gly	Ala	Gly	Lys	Ile
					885					890					895	

	Ala Thr Glu Ala Ile Glu Asn Phe Arg Thr Val Val Ser Leu Thr Gln	
	900 905 910	
	Glu Gln Lys Phe Glu His Met Tyr Ala Gln Ser Leu Gln Val Pro Tyr	
	915 920 925	
5	Arg Asn Ser Leu Arg Lys Ala His Ile Phe Gly Ile Thr Phe Ser Phe	
	930 935 940	
	Thr Gln Ala Met Met Tyr Phe Ser Tyr Ala Gly Cys Phe Arg Phe Gly	
	945 950 955 960	
10	Ala Tyr Leu Val Ala His Lys Leu Met Ser Phe Glu Asp Val Leu Leu	
	965 970 975	
	Val Phe Ser Ala Val Val Phe Gly Ala Met Ala Val Gly Gln Val Ser	
	980 985 990	
	Ser Phe Ala Pro Asp Tyr Ala Lys Ala Lys Ile Ser Ala Ala His Ile	
	995 1000 1005	
15	Ile Met Ile Ile Glu Lys Thr Pro Leu Ile Asp Ser Tyr Ser Thr Glu	
	1010 1015 1020	
	Gly Leu Met Pro Asn Thr Leu Glu Gly Asn Val Thr Phe Gly Glu Val	
	1025 1030 1035 1040	
20	Val Phe Asn Tyr Pro Thr Arg Pro Asp Ile Pro Val Leu Gln Gly Leu	
	1045 1050 1055	
	Ser Leu Glu Val Lys Lys Gly Gln Thr Leu Ala Leu Val Gly Ser Ser	
	1060 1065 1070	
	Gly Cys Gly Lys Ser Thr Val Val Gln Leu Leu Glu Arg Phe Tyr Asp	
	1075 1080 1085	
25	Pro Leu Ala Gly Lys Val Leu Leu Asp Gly Lys Glu Ile Lys Arg Leu	
	1090 1095 1100	
	Asn Val Gln Trp Leu Arg Ala His Leu Gly Ile Val Ser Gln Glu Pro	
	1105 1110 1115 1120	
30	Ile Leu Phe Asp Cys Ser Ile Ala Glu Asn Ile Ala Tyr Gly Asp Asn	
	1125 1130 1135	
	Ser Arg Val Val Ser Gln Glu Glu Ile Val Arg Ala Ala Lys Glu Ala	
	1140 1145 1150	
	Asn Ile His Ala Phe Ile Glu Ser Leu Pro Asn Lys Tyr Ser Thr Lys	
	1155 1160 1165	
35	Val Gly Asp Lys Gly Thr Gln Leu Ser Gly Gly Gln Lys Gln Arg Ile	
	1170 1175 1180	
	Ala Ile Ala Arg Ala Leu Val Arg Gln Pro His Ile Leu Leu Leu Asp	
	1185 1190 1195 1200	
40	Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser Glu Lys Val Val Gln Glu	
	1205 1210 1215	
	Ala Leu Asp Lys Ala Arg Glu Gly Arg Thr Cys Ile Val Ile Ala His	
	1220 1225 1230	
	Arg Leu Ser Thr Ile Gln Asn Ala Asp Leu Ile Val Val Phe Gln Asn	
	1235 1240 1245	
45	Gly Arg Val Lys Glu His Gly Thr His Gln Gln Leu Leu Ala Gln Lys	
	1250 1255 1260	
	Gly Ile Tyr Phe Ser Met Val Ser Val Gln Ala Gly Thr Lys Arg Gln	
	1265 1270 1275 1280	
50	<210> 8	
	<211> 1279	
	<212> PRT	
	<213> Homo sapiens	
55	<400> 8	
	Met Asp Leu Glu Gly Asp Arg Asn Gly Gly Ala Lys Lys Lys Asn Phe	
	1 5 10 15	
	Phe Lys Leu Asn Asn Lys Ser Glu Lys Asp Lys Lys Glu Lys Lys Pro	
	20 25 30	
60	Thr Val Ser Val Phe Ser Met Phe Arg Tyr Ser Asn Trp Leu Asp Lys	

				35					40					45			
		Leu	Tyr	Met	Val	Val	Gly	Thr	Leu	Ala	Ala	Ile	Ile	His	Gly	Ala	Gly
		50						55					60				
5		Leu	Pro	Leu	Met	Met	Leu	Val	Phe	Gly	Glu	Met	Thr	Asp	Ile	Phe	Ala
		65					70					75				80	
		Asn	Ala	Gly	Asn	Leu	Glu	Asp	Leu	Met	Ser	Asn	Ile	Thr	Asn	Arg	Ser
					85					90					95		
		Asp	Ile	Asn	Asp	Thr	Gly	Phe	Phe	Met	Asn	Leu	Glu	Glu	Asp	Met	Thr
				100				105						110			
10		Arg	Tyr	Ala	Tyr	Tyr	Tyr	Ser	Gly	Ile	Gly	Ala	Gly	Val	Leu	Val	Ala
			115					120					125				
		Ala	Tyr	Ile	Gln	Val	Ser	Phe	Trp	Cys	Leu	Ala	Ala	Gly	Arg	Gln	Ile
			130				135					140					
		His	Lys	Ile	Arg	Lys	Gln	Phe	Phe	His	Ala	Ile	Met	Arg	Gln	Glu	Ile
15		145				150						155				160	
		Gly	Trp	Phe	Asp	Val	His	Asp	Val	Gly	Glu	Leu	Asn	Thr	Arg	Leu	Thr
					165					170					175		
		Asp	Asp	Val	Ser	Lys	Ile	Asn	Glu	Gly	Ile	Gly	Asp	Lys	Ile	Gly	Met
				180				185						190			
20		Phe	Phe	Gln	Ser	Met	Ala	Thr	Phe	Phe	Thr	Gly	Phe	Ile	Val	Gly	Phe
			195					200					205				
		Thr	Arg	Gly	Trp	Lys	Leu	Thr	Leu	Val	Ile	Leu	Ala	Ile	Ser	Pro	Val
			210				215					220					
		Leu	Gly	Leu	Ser	Ala	Ala	Val	Trp	Ala	Lys	Ile	Leu	Ser	Ser	Phe	Thr
25		225				230						235				240	
		Asp	Lys	Glu	Leu	Leu	Ala	Tyr	Ala	Lys	Ala	Gly	Ala	Val	Ala	Glu	Glu
					245					250					255		
		Val	Leu	Ala	Ala	Ile	Arg	Thr	Val	Ile	Ala	Phe	Gly	Gly	Gln	Lys	Lys
				260				265						270			
30		Glu	Leu	Glu	Arg	Tyr	Asn	Lys	Asn	Leu	Glu	Glu	Ala	Lys	Arg	Ile	Gly
			275				280						285				
		Ile	Lys	Lys	Ala	Ile	Thr	Ala	Asn	Ile	Ser	Ile	Gly	Ala	Ala	Phe	Leu
			290				295					300					
		Leu	Ile	Tyr	Ala	Ser	Tyr	Ala	Leu	Ala	Phe	Trp	Tyr	Gly	Thr	Thr	Leu
35		305				310						315				320	
		Val	Leu	Ser	Gly	Glu	Tyr	Ser	Ile	Gly	Gln	Val	Leu	Thr	Val	Phe	Ser
					325					330					335		
		Val	Leu	Ile	Gly	Ala	Phe	Ser	Val	Gly	Gln	Ala	Ser	Pro	Ser	Ile	Glu
				340				345					350				
40		Ala	Phe	Ala	Asn	Ala	Arg	Gly	Ala	Ala	Tyr	Glu	Ile	Phe	Lys	Ile	Ile
			355					360					365				
		Asp	Asn	Lys	Pro	Ser	Ile	Asp	Ser	Tyr	Ser	Lys	Ser	Gly	His	Lys	Pro
			370				375					380					
		Asp	Asn	Ile	Lys	Gly	Asn	Leu	Glu	Phe	Arg	Asn	Val	His	Phe	Ser	Tyr
45		385				390						395				400	
		Pro	Ser	Arg	Lys	Glu	Val	Lys	Ile	Leu	Lys	Gly	Leu	Asn	Leu	Lys	Val
					405					410					415		
		Gln	Ser	Gly	Gln	Thr	Val	Ala	Leu	Val	Gly	Asn	Ser	Gly	Cys	Gly	Lys
				420				425						430			
50		Ser	Thr	Thr	Val	Gln	Leu	Met	Gln	Arg	Leu	Tyr	Asp	Pro	Thr	Glu	Gly
			435					440					445				
		Met	Val	Ser	Val	Asp	Gly	Gln	Asp	Ile	Arg	Thr	Ile	Asn	Val	Arg	Phe
			450				455					460					
		Leu	Arg	Glu	Ile	Ile	Gly	Val	Val	Ser	Gln	Glu	Pro	Val	Leu	Phe	Ala
55		465				470						475				480	
		Thr	Thr	Ile	Ala	Glu	Asn	Ile	Arg	Tyr	Gly	Arg	Glu	Asn	Val	Thr	Met
					485					490					495		
		Asp	Glu	Ile	Glu	Lys	Ala	Val	Lys	Glu	Ala	Asn	Ala	Tyr	Asp	Phe	Ile
				500				505					510				
60		Met	Lys	Leu	Pro	His	Lys	Phe	Asp	Thr	Leu	Val	Gly	Glu	Arg	Gly	Ala

		515				520			525								
		Gln	Leu	Ser	Gly	Gly	Gln	Lys	Gln	Arg	Ile	Ala	Ile	Ala	Arg	Ala	Leu
		530						535					540				
5		Val	Arg	Asn	Pro	Lys	Ile	Leu	Leu	Leu	Asp	Glu	Ala	Thr	Ser	Ala	Leu
		545					550					555					560
		Asp	Thr	Glu	Ser	Glu	Ala	Val	Val	Gln	Val	Ala	Leu	Asp	Lys	Ala	Arg
						565					570						575
		Lys	Gly	Arg	Thr	Thr	Ile	Val	Ile	Ala	His	Arg	Leu	Ser	Thr	Val	Arg
						580				585							590
10		Asn	Ala	Asp	Val	Ile	Ala	Gly	Phe	Asp	Asp	Gly	Val	Ile	Val	Glu	Lys
						595			600								605
		Gly	Asn	His	Asp	Glu	Leu	Met	Lys	Glu	Lys	Gly	Ile	Tyr	Phe	Lys	Leu
						610			615				620				
		Val	Thr	Met	Gln	Thr	Ala	Gly	Asn	Glu	Val	Glu	Leu	Glu	Asn	Ala	Ala
15		625					630						635				640
		Asp	Glu	Ser	Lys	Ser	Glu	Ile	Asp	Ala	Leu	Glu	Met	Ser	Ser	Asn	Asp
						645					650						655
		Ser	Arg	Ser	Ser	Leu	Ile	Arg	Lys	Arg	Ser	Thr	Arg	Arg	Ser	Val	Arg
						660				665							670
20		Gly	Ser	Gln	Ala	Gln	Asp	Arg	Lys	Leu	Ser	Thr	Lys	Glu	Ala	Leu	Asp
						675				680							685
		Glu	Ser	Ile	Pro	Pro	Val	Ser	Phe	Trp	Arg	Ile	Met	Lys	Leu	Asn	Leu
						690			695				700				
		Thr	Glu	Trp	Pro	Tyr	Phe	Val	Val	Gly	Val	Phe	Cys	Ala	Ile	Ile	Asn
25		705					710					715					720
		Gly	Gly	Leu	Gln	Pro	Ala	Phe	Ala	Ile	Ile	Phe	Ser	Lys	Ile	Ile	Gly
						725					730						735
		Val	Phe	Thr	Arg	Ile	Asp	Asp	Pro	Glu	Thr	Lys	Arg	Gln	Asn	Ser	Asn
						740				745							750
30		Leu	Phe	Ser	Leu	Leu	Phe	Leu	Ala	Leu	Gly	Ile	Ile	Ser	Phe	Ile	Thr
						755				760							765
		Phe	Phe	Leu	Gln	Gly	Phe	Thr	Phe	Gly	Lys	Ala	Gly	Glu	Ile	Leu	Thr
						770				775				780			
		Lys	Arg	Leu	Arg	Tyr	Met	Val	Phe	Arg	Ser	Met	Leu	Arg	Gln	Asp	Val
35		785					790					795					800
		Ser	Trp	Phe	Asp	Asp	Pro	Lys	Asn	Thr	Thr	Gly	Ala	Leu	Thr	Thr	Arg
						805					810						815
		Leu	Ala	Asn	Asp	Ala	Ala	Gln	Val	Lys	Gly	Ala	Ile	Gly	Ser	Arg	Leu
						820				825							830
40		Ala	Val	Ile	Thr	Gln	Asn	Ile	Ala	Asn	Leu	Gly	Thr	Gly	Ile	Ile	Ile
						835				840							845
		Ser	Phe	Ile	Tyr	Gly	Trp	Gln	Leu	Thr	Leu	Leu	Leu	Leu	Ala	Ile	Val
						850				855							860
		Pro	Ile	Ile	Ala	Ile	Ala	Gly	Val	Val	Glu	Met	Lys	Met	Leu	Ser	Gly
45		865					870					875					880
		Gln	Ala	Leu	Lys	Asp	Lys	Lys	Glu	Leu	Glu	Gly	Ala	Gly	Lys	Ile	Ala
						885					890						895
		Thr	Glu	Ala	Ile	Glu	Asn	Phe	Arg	Thr	Val	Val	Ser	Leu	Thr	Gln	Glu
						900				905							910
50		Gln	Lys	Phe	Glu	His	Met	Tyr	Ala	Gln	Ser	Leu	Gln	Val	Pro	Tyr	Arg
						915				920							925
		Asn	Ser	Leu	Arg	Lys	Ala	His	Ile	Phe	Gly	Ile	Thr	Phe	Ser	Phe	Thr
						930				935							940
		Gln	Ala	Met	Met	Tyr	Phe	Ser	Tyr	Ala	Gly	Cys	Phe	Arg	Phe	Gly	Ala
55		945					950					955					960
		Tyr	Leu	Val	Ala	His	Lys	Leu	Met	Ser	Phe	Glu	Asp	Val	Leu	Leu	Val
						965					970						975
		Phe	Ser	Ala	Val	Val	Phe	Gly	Ala	Met	Ala	Val	Gly	Gln	Val	Ser	Ser
						980				985							990
60		Phe	Ala	Pro	Asp	Tyr	Ala	Lys	Ala	Lys	Ile	Ser	Ala	Ala	His	Ile	Ile

	995		1000		1005
	Met Ile Ile Glu Lys Thr Pro Leu Ile Asp Ser Tyr Ser Thr Glu Gly				
	1010		1015		1020
5	Leu Met Pro Asn Thr Leu Glu Gly Asn Val Thr Phe Gly Glu Val Val				
	1025		1030		1035
	Phe Asn Tyr Pro Thr Arg Pro Asp Ile Pro Val Leu Gln Gly Leu Ser				1040
		1045		1050	
	Leu Glu Val Lys Lys Gly Gln Thr Leu Ala Leu Val Gly Ser Ser Gly				1055
		1060		1065	
10	Cys Gly Lys Ser Thr Val Val Gln Leu Leu Glu Arg Phe Tyr Asp Pro				
		1075		1080	
	Leu Ala Gly Lys Val Leu Leu Asp Gly Lys Glu Ile Lys Arg Leu Asn				1085
		1090		1095	
	Val Gln Trp Leu Arg Ala His Leu Gly Ile Val Ser Gln Glu Pro Ile				1100
15	1105		1110		1115
	Leu Phe Asp Cys Ser Ile Ala Glu Asn Ile Ala Tyr Gly Asp Asn Ser				1120
		1125		1130	
	Arg Val Val Ser Gln Glu Glu Ile Val Arg Ala Ala Lys Glu Ala Asn				1135
		1140		1145	
20	Ile His Ala Phe Ile Glu Ser Leu Pro Asn Lys Tyr Ser Thr Lys Val				
		1155		1160	
	Gly Asp Lys Gly Thr Gln Leu Ser Gly Gly Gln Lys Gln Arg Ile Ala				1165
		1170		1175	
	Ile Ala Arg Ala Leu Val Arg Gln Pro His Ile Leu Leu Leu Asp Glu				1180
25	1185		1190		1195
	Ala Thr Ser Ala Leu Asp Thr Glu Ser Glu Lys Val Val Gln Glu Ala				1200
		1205		1210	
	Leu Asp Lys Ala Arg Glu Gly Arg Thr Cys Ile Val Ile Ala His Arg				1215
		1220		1225	
30	Leu Ser Thr Ile Gln Asn Ala Asp Leu Ile Val Val Phe Gln Asn Gly				1230
		1235		1240	
	Arg Val Lys Glu His Gly Thr His Gln Gln Leu Leu Ala Gln Lys Gly				1245
		1250		1255	
	Ile Tyr Phe Ser Met Val Ser Val Gln Ala Gly Thr Lys Arg Gln				1260
35	1265		1270		1275

<210> 9

<211> 24

<212> DNA

40 <213> Homo sapiens

<400> 9

gaactgtgat tgcgtttgga ggac

24

45 <210> 10

<211> 22

<212> DNA

<213> Canis familiaris

50 <400> 10

ttcagggccg cctgtacctc tg

22

<210> 11

<211> 22

55 <212> DNA

<213> Canis familiaris

<400> 11

ccccacagat ggcattgtct gt

22

60

<210> 12
 <211> 23
 <212> DNA
 <213> Homo sapiens
 5
 <400> 12
 cgcttggtga ggatctctcc agc 23
 <210> 13
 10 <211> 24
 <212> DNA
 <213> Canis familiaris
 <400> 13
 15 agaaacagag aatcgccatt gctc 24
 <210> 14
 <211> 23
 <212> DNA
 20 <213> Homo sapiens
 <400> 14
 gctgcagtca aacaggatgg gct 23
 <210> 15
 25 <211> 24
 <212> DNA
 <213> Canis familiaris
 <400> 15
 30 agttcatttg ctcttgacta tgcc 24
 <210> 16
 <211> 22
 35 <212> DNA
 <213> Homo sapiens
 <400> 16
 gatgcctttc tgggccagca gc 22
 40
 <210> 17
 <211> 30
 <212> DNA
 <213> Canis familiaris
 45
 <400> 17
 gaggtgaaga agggccagac gctggcctc 30
 <210> 18
 50 <211> 45
 <212> DNA
 <213> Artificial Sequence
 <220>
 55 <223> Synthetic oligonucleotide
 <400> 18
 ctaatagac tcactatagg gcaagcagtg gtaacaacgc agagt 45
 60 <210> 19

5	<400> 19 cgagccact gttcccaacc agcgccact	29
	<210> 20 <211> 23 <212> DNA <213> Homo sapiens	
10		
	<400> 20 ggagcgcgag gtcgggatgg atc	23
15		
	<210> 21 <211> 31 <212> DNA <213> Canis familiaris	
20		
	<400> 21 ggagaggacc aaggaggtcc cataccagaa a	31
25		
	<210> 22 <211> 4279 <212> DNA <213> Canis familiaris	
30		
	<220> <221> CDS <222> (17)...(3859)	
35		
	<400> 22 ggagcgcgag gtcggg atg gat cct gaa gga ggc cgt aag ggg agt gca gag Met Asp Pro Glu Gly Gly Arg Lys Gly Ser Ala Glu 1 5 10	52
40		
	aag aac ttc tgg aaa atg ggc aaa aaa agt aaa aaa aat gag aag aaa Lys Asn Phe Trp Lys Met Gly Lys Lys Ser Lys Lys Asn Glu Lys Lys 15 20 25	100
45		
	gaa aag aaa cca act gtc agc acg ttt gca atg ttt cgc tat tca aat Glu Lys Lys Pro Thr Val Ser Thr Phe Ala Met Phe Arg Tyr Ser Asn 30 35 40	148
50		
	tgg ctt gat agg ttg tat atg ttg gtg ggg aca atg gct gcc atc atc Trp Leu Asp Arg Leu Tyr Met Leu Val Gly Thr Met Ala Ala Ile Ile 45 50 55 60	196
55		
	cat gga gct gca ctc cct ctc atg atg ctg gtt ttt gga aac atg aca His Gly Ala Ala Leu Pro Leu Met Met Leu Val Phe Gly Asn Met Thr 65 70 75	244
60		
	gat agc ttt gca aat gca gga att tca aga aac aaa act ttt cca gtt Asp Ser Phe Ala Asn Ala Gly Ile Ser Arg Asn Lys Thr Phe Pro Val 80 85 90	292
	ata att aat gaa agt att acg aac aat aca caa cat ttc atc aac cat Ile Ile Asn Glu Ser Ile Thr Asn Asn Thr Gln His Phe Ile Asn His 95 100 105	340

	ctg gag gag gaa atg acc acg tat gcc tat tat tac agt ggg atc ggt Leu Glu Glu Glu Met Thr Thr Tyr Ala Tyr Tyr Tyr Ser Gly Ile Gly 110 115 120	388
5	gct ggc gtg ctg gtg gct gct tac atc cag gtt tca ttc tgg tgc ctg Ala Gly Val Leu Val Ala Ala Tyr Ile Gln Val Ser Phe Trp Cys Leu 125 130 135 140	436
10	gca gca gga aga cag ata ctc aaa att aga aaa caa ttt ttt cat gct Ala Ala Gly Arg Gln Ile Leu Lys Ile Arg Lys Gln Phe Phe His Ala 145 150 155	484
15	atc atg cga cag gag att ggc tgg ttt gac gtg cat gac gtt ggg gag Ile Met Arg Gln Glu Ile Gly Trp Phe Asp Val His Asp Val Gly Glu 160 165 170	532
20	ctt aac acc cgg ctc aca gac gat gtc tcc aaa atc aat gaa gga att Leu Asn Thr Arg Leu Thr Asp Asp Val Ser Lys Ile Asn Glu Gly Ile 175 180 185	580
25	ggc gac aaa att gga atg ttc ttt caa tca ata gca aca ttt ttc acc Gly Asp Lys Ile Gly Met Phe Phe Gln Ser Ile Ala Thr Phe Phe Thr 190 195 200	628
30	ggc ttt ata gtg ggg ttt aca cgt ggt tgg aag cta acc ctt gtg att Gly Phe Ile Val Gly Phe Thr Arg Gly Trp Lys Leu Thr Leu Val Ile 205 210 215 220	676
35	ttg gcc atc agc cct gtt ctt gga ctt tca gcc gcc atc tgg gca aag Leu Ala Ile Ser Pro Val Leu Gly Leu Ser Ala Ala Ile Trp Ala Lys 225 230 235	724
40	ata cta tct tca ttt act gat aaa gaa ctc ttg gcc tat gca aaa gct Ile Leu Ser Ser Phe Thr Asp Lys Glu Leu Leu Ala Tyr Ala Lys Ala 240 245 250	772
45	gga gca gta gct gaa gaa gtc tta gca gca atc aga act gtg att gcc Gly Ala Val Ala Glu Glu Val Leu Ala Ala Ile Arg Thr Val Ile Ala 255 260 265	820
50	ttt gga gga caa aag aaa gaa ctt gaa agg tac aac aaa aat tta gaa Phe Gly Gly Gln Lys Lys Glu Leu Glu Arg Tyr Asn Lys Asn Leu Glu 270 275 280	868
55	gaa gct aaa gga att ggg ata aag aaa gct atc acg gcc aac att tct Glu Ala Lys Gly Ile Gly Ile Lys Lys Ala Ile Thr Ala Asn Ile Ser 285 290 295 300	916
60	att ggt gcc gct ttc tta ttg atc tat gca tca tat gct ctg gct ttc Ile Gly Ala Ala Phe Leu Leu Ile Tyr Ala Ser Tyr Ala Leu Ala Phe 305 310 315	964
65	tgg tat ggg acc tcc ttg gtc ctc tcc agt gaa tat tct att gga caa Trp Tyr Gly Thr Ser Leu Val Leu Ser Ser Glu Tyr Ser Ile Gly Gln 320 325 330	1012
70	gta ctc act gtc ttc ttt tct gta tta att ggg gct ttt agt att gga Val Leu Thr Val Phe Phe Ser Val Leu Ile Gly Ala Phe Ser Ile Gly 335 340 345	1060

	cag gca tcc cca agc att gaa gca ttt gca aac gca aga gga gca gct	1108
	Gln Ala Ser Pro Ser Ile Glu Ala Phe Ala Asn Ala Arg Gly Ala Ala	
	350 355 360	
5	tat gaa atc ttc aag ata att gac aat aaa cca agc att gac agc tat	1156
	Tyr Glu Ile Phe Lys Ile Ile Asp Asn Lys Pro Ser Ile Asp Ser Tyr	
	365 370 375 380	
10	tcg aag agt gga cat aaa cca gat aat att aag gga aat ttg gaa ttc	1204
	Ser Lys Ser Gly His Lys Pro Asp Asn Ile Lys Gly Asn Leu Glu Phe	
	385 390 395	
15	aaa aat gtt cac ttc agt tac cct tct cga aaa gaa gtt aag atc tta	1252
	Lys Asn Val His Phe Ser Tyr Pro Ser Arg Lys Glu Val Lys Ile Leu	
	400 405 410	
20	aag ggt ctc aac ctg aag gtt cag agt ggg cag aca gtg gcg ctg gtt	1300
	Lys Gly Leu Asn Leu Lys Val Gln Ser Gly Gln Thr Val Ala Leu Val	
	415 420 425	
	ggg aac agt ggc tgc ggg aag agc acg acc gtg cag ctg atg cag agg	1348
	Gly Asn Ser Gly Cys Gly Lys Ser Thr Thr Val Gln Leu Met Gln Arg	
	430 435 440	
25	ctc tat gac ccc aca gat ggc atg gtc tgt att gat gga cag gac att	1396
	Leu Tyr Asp Pro Thr Asp Gly Met Val Cys Ile Asp Gly Gln Asp Ile	
	445 450 455 460	
30	agg acc ata aat gta agg cat ctt cgg gaa att act ggt gtg gtg agt	1444
	Arg Thr Ile Asn Val Arg His Leu Arg Glu Ile Thr Gly Val Val Ser	
	465 470 475	
35	cag gag cct gtg ttg ttt gcc acc acg ata gct gaa aac att cgc tat	1492
	Gln Glu Pro Val Leu Phe Ala Thr Thr Ile Ala Glu Asn Ile Arg Tyr	
	480 485 490	
40	ggc cgc gaa aat gtc acc atg gat gag att gag aaa gct gtt aag gaa	1540
	Gly Arg Glu Asn Val Thr Met Asp Glu Ile Glu Lys Ala Val Lys Glu	
	495 500 505	
	gcc aat gcc tat gat ttt atc atg aaa cta cct aat aaa ttt gac act	1588
	Ala Asn Ala Tyr Asp Phe Ile Met Lys Leu Pro Asn Lys Phe Asp Thr	
	510 515 520	
45	ctg gtt gga gag aga ggg gcc cag ctg agt ggt gga cag aaa cag aga	1636
	Leu Val Gly Glu Arg Gly Ala Gln Leu Ser Gly Gly Gln Lys Gln Arg	
	525 530 535 540	
50	atc gcc att gct cgg gcc ctg gtt cgc aac ccc aag att ctt ctg ctg	1684
	Ile Ala Ile Ala Arg Ala Leu Val Arg Asn Pro Lys Ile Leu Leu Leu	
	545 550 555	
55	gat gag gca acg tca gct ctg gac act gaa agt gaa gca gtg gtt cag	1732
	Asp Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser Glu Ala Val Val Gln	
	560 565 570	
60	gtg gcc ctg gat aag gcc aga aaa ggc cgg act acc att gtg ata gct	1780
	Val Ala Leu Asp Lys Ala Arg Lys Gly Arg Thr Thr Ile Val Ile Ala	
	575 580 585	

	cat cgt ttg tct aca gtt cgt aat gcc gat gtc att gct ggt ttt gat	1828
	His Arg Leu Ser Thr Val Arg Asn Ala Asp Val Ile Ala Gly Phe Asp	
	590 595 600	
5		
	gat gga gtc att gtg gag aaa gga aat cat gat gaa ctc atg aaa gag	1876
	Asp Gly Val Ile Val Glu Lys Gly Asn His Asp Glu Leu Met Lys Glu	
	605 610 615 620	
10		
	aag ggc att tac ttc aaa ctt gtc aca atg cag aca aga gga aat gaa	1924
	Lys Gly Ile Tyr Phe Lys Leu Val Thr Met Gln Thr Arg Gly Asn Glu	
	625 630 635	
15		
	att gag tta gaa aat gcc act ggt gaa tcc aaa agt gaa agt gat gcc	1972
	Ile Glu Leu Glu Asn Ala Thr Gly Glu Ser Lys Ser Glu Ser Asp Ala	
	640 645 650	
20		
	ttg gaa atg tct cca aaa gat tca ggg tcc agt tta ata aaa aga aga	2020
	Leu Glu Met Ser Pro Lys Asp Ser Gly Ser Ser Leu Ile Lys Arg Arg	
	655 660 665	
25		
	tca act cgc agg agt ata cat gca cca caa ggc caa gac aga aag ctt	2068
	Ser Thr Arg Arg Ser Ile His Ala Pro Gln Gly Gln Asp Arg Lys Leu	
	670 675 680	
30		
	ggt aca aaa gag gac ttg aat gag aat gta cct cca gtt tcc ttc tgg	2116
	Gly Thr Lys Glu Asp Leu Asn Glu Asn Val Pro Pro Val Ser Phe Trp	
	685 690 695 700	
35		
	agg att ctg aag ctg aac tca act gaa tgg cct tat ttt gtg gtt ggt	2164
	Arg Ile Leu Lys Leu Asn Ser Thr Glu Trp Pro Tyr Phe Val Val Gly	
	705 710 715	
40		
	ata ttt tgt gct att ata aac gga ggc ctg caa cca gca ttt tca ata	2212
	Ile Phe Cys Ala Ile Ile Asn Gly Gly Leu Gln Pro Ala Phe Ser Ile	
	720 725 730	
45		
	ata ttt tca agg att ata ggg atc ttt acc cga gat gag gat cct gaa	2260
	Ile Phe Ser Arg Ile Ile Gly Ile Phe Thr Arg Asp Glu Asp Pro Glu	
	735 740 745	
50		
	aca aaa cga cag aat agt aac atg ttt tct gta ttg ttt cta gtc ctt	2308
	Thr Lys Arg Gln Asn Ser Asn Met Phe Ser Val Leu Phe Leu Val Leu	
	750 755 760	
55		
	gga att att tct ttt att aca ttt ttc ctc cag ggc ttc aca ttt ggc	2356
	Gly Ile Ile Ser Phe Ile Thr Phe Phe Leu Gln Gly Phe Thr Phe Gly	
	765 770 775 780	
60		
	aaa gct ggg gag atc ctc act aag cgg ctt cga tac atg gtt ttc aga	2404
	Lys Ala Gly Glu Ile Leu Thr Lys Arg Leu Arg Tyr Met Val Phe Arg	
	785 790 795	
65		
	tcc atg ctg aga cag gat gtc agc tgg ttt gat gac cct aaa aac acc	2452
	Ser Met Leu Arg Gln Asp Val Ser Trp Phe Asp Asp Pro Lys Asn Thr	
	800 805 810	
70		
	act gga gca ttg aca acc agg ctt gcc aat gat gcg gct caa gtt aaa	2500
	Thr Gly Ala Leu Thr Thr Arg Leu Ala Asn Asp Ala Ala Gln Val Lys	
	815 820 825	

	ggg gct ata ggt tcc agg ctt gct gtc att acc cag aat ata gca aat	2548
	Gly Ala Ile Gly Ser Arg Leu Ala Val Ile Thr Gln Asn Ile Ala Asn	
	830 835 840	
5	ctt ggg aca ggc att att ata tcc tta atc tat ggt tgg caa tta aca	2596
	Leu Gly Thr Gly Ile Ile Ile Ser Leu Ile Tyr Gly Trp Gln Leu Thr	
	845 850 855 860	
10	ctt tta ctc tta gca att gta ccc atc att gca ata gca gga gtt gtt	2644
	Leu Leu Leu Leu Ala Ile Val Pro Ile Ile Ala Ile Ala Gly Val Val	
	865 870 875	
15	gaa atg aaa atg ttg tct gga caa gca ctg aaa gat aag aaa gag cta	2692
	Glu Met Lys Met Leu Ser Gly Gln Ala Leu Lys Asp Lys Lys Glu Leu	
	880 885 890	
20	gaa gga gct ggg aag att gct aca gaa gcc atc gaa aac ttc cga act	2740
	Glu Gly Ala Gly Lys Ile Ala Thr Glu Ala Ile Glu Asn Phe Arg Thr	
	895 900 905	
25	gtt gtt tct ttg act cgg gag cag aag ttt gaa tac atg tat gca cag	2788
	Val Val Ser Leu Thr Arg Glu Gln Lys Phe Glu Tyr Met Tyr Ala Gln	
	910 915 920	
30	agt ttg caa gta cca tac aga aac tct ttg agg aaa gca cac atc ttc	2836
	Ser Leu Gln Val Pro Tyr Arg Asn Ser Leu Arg Lys Ala His Ile Phe	
	925 930 935 940	
35	ggg gtc tca ttt tct atc acc cag gca atg atg tat ttt tcc tat gct	2884
	Gly Val Ser Phe Ser Ile Thr Gln Ala Met Met Tyr Phe Ser Tyr Ala	
	945 950 955	
40	ggc tgt ttc cgg ttt ggt gcc tac ttg gtg gca aat gag ttc atg aac	2932
	Gly Cys Phe Arg Phe Gly Ala Tyr Leu Val Ala Asn Glu Phe Met Asn	
	960 965 970	
45	ttt cag gat gtt ctt ttg gta ttc tca gct att gtc ttt ggt gcc atg	2980
	Phe Gln Asp Val Leu Leu Val Phe Ser Ala Ile Val Phe Gly Ala Met	
	975 980 985	
50	gca gtg ggg cag gtc agt tca ttt gct cct gac tat gcc aaa gcc aaa	3028
	Ala Val Gly Gln Val Ser Ser Phe Ala Pro Asp Tyr Ala Lys Ala Lys	
	990 995 1000	
55	gta tca gca gcc cac gtc atc atg atc att gaa aaa agc cct ctg att	3076
	Val Ser Ala Ala His Val Ile Met Ile Ile Glu Lys Ser Pro Leu Ile	
	1005 1010 1015 1020	
60	gac agc tac agc cct cac ggc ctc aag cca aat acg ttg gaa gga aat	3124
	Asp Ser Tyr Ser Pro His Gly Leu Lys Pro Asn Thr Leu Glu Gly Asn	
	1025 1030 1035	
65	gtg aca ttt aat gag gtc gtg ttc aac tat ccc act cga cca gac atc	3172
	Val Thr Phe Asn Glu Val Val Phe Asn Tyr Pro Thr Arg Pro Asp Ile	
	1040 1045 1050	
70	ccc gtg ctc cag ggg ctg agc ctc gag gtg aag aag ggc cag acg ctg	3220
	Pro Val Leu Gln Gly Leu Ser Leu Glu Val Lys Lys Gly Gln Thr Leu	
	1055 1060 1065	

	gcc ctc gta ggt agc agt ggc tgt ggg aag agc aca gtt gtt cag ctc	3268
	Ala Leu Val Gly Ser Ser Gly Cys Gly Lys Ser Thr Val Val Gln Leu	
	1070 1075 1080	
5	cta gag cgc ttc tat gac ccc ttg gct ggt tca gtg cta att gat ggc	3316
	Leu Glu Arg Phe Tyr Asp Pro Leu Ala Gly Ser Val Leu Ile Asp Gly	
	1085 1090 1095 1100	
10	aaa gag ata aag cac ctg aat gtc cag tgg ctc cga gca cac ctg ggc	3364
	Lys Glu Ile Lys His Leu Asn Val Gln Trp Leu Arg Ala His Leu Gly	
	1105 1110 1115	
15	atc gtg tct cag gag ccc atc ctg ttt gac tgc agc att gcc gag aac	3412
	Ile Val Ser Gln Glu Pro Ile Leu Phe Asp Cys Ser Ile Ala Glu Asn	
	1120 1125 1130	
20	att gcc tat gga gac aac agc cgg gtc gta tca cat gaa gag att atg	3460
	Ile Ala Tyr Gly Asp Asn Ser Arg Val Val Ser His Glu Glu Ile Met	
	1135 1140 1145	
25	cag gca gcc aag gag gcc aac ata cac cac ttc atc gag aca ctc cct	3508
	Gln Ala Ala Lys Glu Ala Asn Ile His His Phe Ile Glu Thr Leu Pro	
	1150 1155 1160	
30	gag aaa tac aac acc aga gta gga gac aaa gga acc cag ctc tct ggt	3556
	Glu Lys Tyr Asn Thr Arg Val Gly Asp Lys Gly Thr Gln Leu Ser Gly	
	1165 1170 1175 1180	
35	ggc cag aaa cag cgc att gcc ata gct cgc gct ctt gtt aga cag cct	3604
	Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg Ala Leu Val Arg Gln Pro	
	1185 1190 1195	
40	cat att ttg ctt ttg gat gaa gct aca tca gct ctg gat aca gaa agt	3652
	His Ile Leu Leu Leu Asp Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser	
	1200 1205 1210	
45	gaa aag gtt gtc caa gaa gcc ctg gac aaa gcc aga gaa ggc cgc acc	3700
	Glu Lys Val Val Gln Glu Ala Leu Asp Lys Ala Arg Glu Gly Arg Thr	
	1215 1220 1225	
50	tgc att gtg atc gcc cac cgc ttg tcc acc atc cag aat gca gat tta	3748
	Cys Ile Val Ile Ala His Arg Leu Ser Thr Ile Gln Asn Ala Asp Leu	
	1230 1235 1240	
55	ata gtg gtg ttt cag aat ggc aaa gtc aag gag cat ggc aca cat caa	3796
	Ile Val Val Phe Gln Asn Gly Lys Val Lys Glu His Gly Thr His Gln	
	1245 1250 1255 1260	
60	cag ctg ctg gcc cag aaa ggc atc tat ttt tcc atg gtc agt gtc cag	3844
	Gln Leu Leu Ala Gln Lys Gly Ile Tyr Phe Ser Met Val Ser Val Gln	
	1265 1270 1275	
65	gct gga gca aag cgc tagtgaactg tggccatatg agctgttaaa tattttttaa	3899
	Ala Gly Ala Lys Arg	
	1280	
70	tatttgtgtt aaaacatggc atttaaatcaa agttaaaggg tgagcactta ctggaaaaac	3959
	tatgtagaac tacctgttta acatttcttg ctgcaactga agatcattcc accaagttca	4019
	gagtcttcag attttataat taaaggaacc aaaagaaaca ttatctgatg gaataaaata	4079

ctgggtgttaa ttgcattata aaattataga gtaattcaaa gtagattttg ttaataaatt 4139
 gtataatttt tgtttatatt ttatttgtaa cttactgctt tgctgaaaga ttatagaagt 4199
 ggtaaaaagt actgaatggt tgaataaagt gctagctata ataaaactaa acttttatat 4259
 caaaaaaaaa aaaaaaaaaa 4279

5

<210> 23
 <211> 1281
 <212> PRT
 <213> Canis familiaris

10

<400> 23
 Met Asp Pro Glu Gly Gly Arg Lys Gly Ser Ala Glu Lys Asn Phe Trp
 1 5 10 15
 Lys Met Gly Lys Lys Ser Lys Lys Asn Glu Lys Lys Glu Lys Lys Pro
 20 25 30
 Thr Val Ser Thr Phe Ala Met Phe Arg Tyr Ser Asn Trp Leu Asp Arg
 35 40 45
 Leu Tyr Met Leu Val Gly Thr Met Ala Ala Ile Ile His Gly Ala Ala
 50 55 60
 Leu Pro Leu Met Met Leu Val Phe Gly Asn Met Thr Asp Ser Phe Ala
 65 70 75 80
 Asn Ala Gly Ile Ser Arg Asn Lys Thr Phe Pro Val Ile Ile Asn Glu
 85 90 95
 Ser Ile Thr Asn Asn Thr Gln His Phe Ile Asn His Leu Glu Glu Glu
 100 105 110
 Met Thr Thr Tyr Ala Tyr Tyr Tyr Ser Gly Ile Gly Ala Gly Val Leu
 115 120 125
 Val Ala Ala Tyr Ile Gln Val Ser Phe Trp Cys Leu Ala Ala Gly Arg
 130 135 140
 Gln Ile Leu Lys Ile Arg Lys Gln Phe Phe His Ala Ile Met Arg Gln
 145 150 155 160
 Glu Ile Gly Trp Phe Asp Val His Asp Val Gly Glu Leu Asn Thr Arg
 165 170 175
 Leu Thr Asp Asp Val Ser Lys Ile Asn Glu Gly Ile Gly Asp Lys Ile
 180 185 190
 Gly Met Phe Phe Gln Ser Ile Ala Thr Phe Phe Thr Gly Phe Ile Val
 195 200 205
 Gly Phe Thr Arg Gly Trp Lys Leu Thr Leu Val Ile Leu Ala Ile Ser
 210 215 220
 Pro Val Leu Gly Leu Ser Ala Ala Ile Trp Ala Lys Ile Leu Ser Ser
 225 230 235 240
 Phe Thr Asp Lys Glu Leu Leu Ala Tyr Ala Lys Ala Gly Ala Val Ala
 245 250 255
 Glu Glu Val Leu Ala Ala Ile Arg Thr Val Ile Ala Phe Gly Gly Gln
 260 265 270
 Lys Lys Glu Leu Glu Arg Tyr Asn Lys Asn Leu Glu Glu Ala Lys Gly
 275 280 285
 Ile Gly Ile Lys Lys Ala Ile Thr Ala Asn Ile Ser Ile Gly Ala Ala
 290 295 300
 Phe Leu Leu Ile Tyr Ala Ser Tyr Ala Leu Ala Phe Trp Tyr Gly Thr
 305 310 315 320
 Ser Leu Val Leu Ser Ser Glu Tyr Ser Ile Gly Gln Val Leu Thr Val
 325 330 335
 Phe Phe Ser Val Leu Ile Gly Ala Phe Ser Ile Gly Gln Ala Ser Pro
 340 345 350
 Ser Ile Glu Ala Phe Ala Asn Ala Arg Gly Ala Ala Tyr Glu Ile Phe
 355 360 365
 Lys Ile Ile Asp Asn Lys Pro Ser Ile Asp Ser Tyr Ser Lys Ser Gly
 370 375 380
 His Lys Pro Asp Asn Ile Lys Gly Asn Leu Glu Phe Lys Asn Val His

[illegible]

	865		870		875		880
	Leu Ser Gly Gln Ala	Leu Lys Asp Lys Lys	Glu Leu Glu Gly Ala Gly				
		885		890		895	
5	Lys Ile Ala Thr Glu Ala	Ile Glu Asn Phe Arg Thr Val Val Ser Leu					
		900		905		910	
	Thr Arg Glu Gln Lys Phe	Glu Tyr Met Tyr Ala Gln Ser Leu Gln Val					
		915		920		925	
	Pro Tyr Arg Asn Ser Leu	Arg Lys Ala His Ile Phe Gly Val Ser Phe					
		930		935		940	
10	Ser Ile Thr Gln Ala Met	Met Tyr Phe Ser Tyr Ala Gly Cys Phe Arg					
		945		950		955	
	Phe Gly Ala Tyr Leu Val	Ala Asn Glu Phe Met Asn Phe Gln Asp Val					
		965		970		975	
15	Leu Leu Val Phe Ser Ala	Ile Val Phe Gly Ala Met Ala Val Gly Gln					
		980		985		990	
	Val Ser Ser Phe Ala Pro	Asp Tyr Ala Lys Ala Lys Val Ser Ala Ala					
		995		1000		1005	
	His Val Ile Met Ile Ile	Glu Lys Ser Pro Leu Ile Asp Ser Tyr Ser					
		1010		1015		1020	
20	Pro His Gly Leu Lys Pro	Asn Thr Leu Glu Gly Asn Val Thr Phe Asn					
		1025		1030		1035	
	Glu Val Val Phe Asn Tyr	Pro Thr Arg Pro Asp Ile Pro Val Leu Gln					
		1045		1050		1055	
25	Gly Leu Ser Leu Glu Val	Lys Lys Gly Gln Thr Leu Ala Leu Val Gly					
		1060		1065		1070	
	Ser Ser Gly Cys Gly Lys	Ser Thr Val Val Gln Leu Leu Glu Arg Phe					
		1075		1080		1085	
	Tyr Asp Pro Leu Ala Gly	Ser Val Leu Ile Asp Gly Lys Glu Ile Lys					
		1090		1095		1100	
30	His Leu Asn Val Gln Trp	Leu Arg Ala His Leu Gly Ile Val Ser Gln					
		1105		1110		1115	
	Glu Pro Ile Leu Phe Asp	Cys Ser Ile Ala Glu Asn Ile Ala Tyr Gly					
		1125		1130		1135	
35	Asp Asn Ser Arg Val Val	Ser His Glu Glu Ile Met Gln Ala Ala Lys					
		1140		1145		1150	
	Glu Ala Asn Ile His His	Phe Ile Glu Thr Leu Pro Glu Lys Tyr Asn					
		1155		1160		1165	
	Thr Arg Val Gly Asp Lys	Gly Thr Gln Leu Ser Gly Gly Gln Lys Gln					
		1170		1175		1180	
40	Arg Ile Ala Ile Ala Arg	Ala Leu Val Arg Gln Pro His Ile Leu Leu					
		1185		1190		1195	
	Leu Asp Glu Ala Thr Ser	Ala Leu Asp Thr Glu Ser Glu Lys Val Val					
		1205		1210		1215	
45	Gln Glu Ala Leu Asp Lys	Ala Arg Glu Gly Arg Thr Cys Ile Val Ile					
		1220		1225		1230	
	Ala His Arg Leu Ser Thr	Ile Gln Asn Ala Asp Leu Ile Val Val Phe					
		1235		1240		1245	
	Gln Asn Gly Lys Val Lys	Glu His Gly Thr His Gln Gln Leu Leu Ala					
		1250		1255		1260	
50	Gln Lys Gly Ile Tyr Phe	Ser Met Val Ser Val Gln Ala Gly Ala Lys					
		1265		1270		1275	
	Arg					1280	

55 <210> 24
 <211> 4279
 <212> DNA
 <213> Canis familiaris

60 <220>

<221> CDS

<222> (17)...(3859)

<400> 24

5	ggagcgcgag gtcggg atg gat cct gaa gga ggc cgt aag ggg agt gca gag	52
	Met Asp Pro Glu Gly Gly Arg Lys Gly Ser Ala Glu	
	1 5 10	
10	aag aac ttc tgg aaa atg ggc aaa aaa agt aaa aaa gag aag aaa	100
	Lys Asn Phe Trp Lys Met Gly Lys Lys Ser Lys Lys Lys Glu Lys Lys	
	15 20 25	
15	gaa aag aaa cca act gtc agc acg ttt gca atg ttt cgc tat tca aat	148
	Glu Lys Lys Pro Thr Val Ser Thr Phe Ala Met Phe Arg Tyr Ser Asn	
	30 35 40	
20	tgg ctt gat agg ttg tat atg ttg gtg ggg aca atg gct gcc atc atc	196
	Trp Leu Asp Arg Leu Tyr Met Leu Val Gly Thr Met Ala Ala Ile Ile	
	45 50 55 60	
25	cat gga gct gca ctc cct ctc atg atg ctg gtt ttt gga aac atg aca	244
	His Gly Ala Ala Leu Pro Leu Met Met Leu Val Phe Gly Asn Met Thr	
	65 70 75	
30	gat agc ttt gca aat gca gga att tca aga aac aaa act ttt cca gtt	292
	Asp Ser Phe Ala Asn Ala Gly Ile Ser Arg Asn Lys Thr Phe Pro Val	
	80 85 90	
35	ata att aat gaa agt att acg aac aat aca caa cat ttc atc aac cat	340
	Ile Ile Asn Glu Ser Ile Thr Asn Asn Thr Gln His Phe Ile Asn His	
	95 100 105	
40	ctg gag gag gaa atg acc acg tat gcc tat tat tac agt ggg atc ggt	388
	Leu Glu Glu Glu Met Thr Thr Tyr Ala Tyr Tyr Tyr Ser Gly Ile Gly	
	110 115 120	
45	gct ggc gtg ctg gtg gct gct tac atc cag gtt tca ttc tgg tgc ctg	436
	Ala Gly Val Leu Val Ala Ala Tyr Ile Gln Val Ser Phe Trp Cys Leu	
	125 130 135 140	
50	gca gca gga aga cag ata ctc aaa att aga aaa caa ttt ttt cat gct	484
	Ala Ala Gly Arg Gln Ile Leu Lys Ile Arg Lys Gln Phe Phe His Ala	
	145 150 155	
55	atc atg cga cag gag att ggc tgg ttt gac gtg cat gac gtt ggg gag	532
	Ile Met Arg Gln Glu Ile Gly Trp Phe Asp Val His Asp Val Gly Glu	
	160 165 170	
60	ctt aac acc cgg ctc aca gac gat gtc tcc aaa atc aat gaa gga att	580
	Leu Asn Thr Arg Leu Thr Asp Val Ser Lys Ile Asn Glu Gly Ile	
	175 180 185	
65	ggc gac aaa att gga atg ttc ttt caa tca ata gca aca ttt ttc acc	628
	Gly Asp Lys Ile Gly Met Phe Phe Gln Ser Ile Ala Thr Phe Phe Thr	
	190 195 200	
70	ggt ttt ata gtg ggg ttt aca cgt ggt tgg aag cta acc ctt gtg att	676
	Gly Phe Ile Val Gly Phe Thr Arg Gly Trp Lys Leu Thr Leu Val Ile	
	205 210 215 220	

	ttg gcc atc agc cct gtt ctt gga ctt tca gcc gcc atc tgg gca aag	724
	Leu Ala Ile Ser Pro Val Leu Gly Leu Ser Ala Ala Ile Trp Ala Lys	
	225 230 235	
5	ata cta tct tca ttt act gat aaa gaa ctc ttg gcc tat gca aaa gct	772
	Ile Leu Ser Ser Phe Thr Asp Lys Glu Leu Leu Ala Tyr Ala Lys Ala	
	240 245 250	
10	gga gca gta gct gaa gaa gtc tta gca gca atc aga act gtg att gcc	820
	Gly Ala Val Ala Glu Glu Val Leu Ala Ala Ile Arg Thr Val Ile Ala	
	255 260 265	
15	ttt gga gga caa aag aaa gaa ctt gaa agg tac aac aaa aat tta gaa	868
	Phe Gly Gly Gln Lys Lys Glu Leu Glu Arg Tyr Asn Lys Asn Leu Glu	
	270 275 280	
20	gaa gct aaa gga att ggg ata aag aaa gct atc acg gcc aac att tct	916
	Glu Ala Lys Gly Ile Gly Ile Lys Lys Ala Ile Thr Ala Asn Ile Ser	
	285 290 295 300	
25	att ggt gcc gct ttc tta ttg atc tat gca tca tat gct ctg gct ttc	964
	Ile Gly Ala Ala Phe Leu Leu Ile Tyr Ala Ser Tyr Ala Leu Ala Phe	
	305 310 315	
30	tgg tat ggg acc tcc ttg gtc ctc tcc agt gaa tat tct att gga caa	1012
	Trp Tyr Gly Thr Ser Leu Val Leu Ser Ser Glu Tyr Ser Ile Gly Gln	
	320 325 330	
35	gta ctc act gtc ttc ttt tct gta tta att ggg gct ttt agt att gga	1060
	Val Leu Thr Val Phe Phe Ser Val Leu Ile Gly Ala Phe Ser Ile Gly	
	335 340 345	
40	cag gca tcc cca agc att gaa gca ttt gca aac gca aga gga gca gct	1108
	Gln Ala Ser Pro Ser Ile Glu Ala Phe Ala Asn Ala Arg Gly Ala Ala	
	350 355 360	
45	tat gaa atc ttc aag ata att gac aat aaa cca agc att gac agc tat	1156
	Tyr Glu Ile Phe Lys Ile Ile Asp Asn Lys Pro Ser Ile Asp Ser Tyr	
	365 370 375 380	
50	tcg aag agt gga cat aaa cca gat aat att aag gga aat ttg gaa ttc	1204
	Ser Lys Ser Gly His Lys Pro Asp Asn Ile Lys Gly Asn Leu Glu Phe	
	385 390 395	
55	aaa aat gtt cac ttc agt tac cct tct cga aaa gaa gtt aag atc tta	1252
	Lys Asn Val His Phe Ser Tyr Pro Ser Arg Lys Glu Val Lys Ile Leu	
	400 405 410	
60	aag ggt ctc aac ctg aag gtt cag agt ggg cag aca gtg gcg ctg gtt	1300
	Lys Gly Leu Asn Leu Lys Val Gln Ser Gly Gln Thr Val Ala Leu Val	
	415 420 425	
65	ggg aac agt ggc tgc ggg aag agc acg acc gtg cag ctg atg cag agg	1348
	Gly Asn Ser Gly Cys Gly Lys Ser Thr Thr Val Gln Leu Met Gln Arg	
	430 435 440	
70	ctc tat gac ccc aca gat ggc atg gtc tgt att gat gga cag gac att	1396
	Leu Tyr Asp Pro Thr Asp Gly Met Val Cys Ile Asp Gly Gln Asp Ile	
	445 450 455 460	

	agg acc ata aat gta agg cat ctt cgg gaa att act ggt gtg gtg agt	1444
	Arg Thr Ile Asn Val Arg His Leu Arg Glu Ile Thr Gly Val Val Ser	
	465 470 475	
5	cag gag cct gtg ttg ttt gcc acc acg ata gct gaa aac att cgc tat	1492
	Gln Glu Pro Val Leu Phe Ala Thr Thr Ile Ala Glu Asn Ile Arg Tyr	
	480 485 490	
10	ggc cgc gaa aat gtc acc atg gat gag att gag aaa gct gtt aag gaa	1540
	Gly Arg Glu Asn Val Thr Met Asp Glu Ile Glu Lys Ala Val Lys Glu	
	495 500 505	
15	gcc aat gcc tat gat ttt atc atg aaa cta cct aat aaa ttt gac act	1588
	Ala Asn Ala Tyr Asp Phe Ile Met Lys Leu Pro Asn Lys Phe Asp Thr	
	510 515 520	
20	ctg gtt gga gag aga ggg gcc cag ctg agt ggt gga cag aaa cag aga	1636
	Leu Val Gly Glu Arg Gly Ala Gln Leu Ser Gly Gly Gln Lys Gln Arg	
	525 530 535 540	
25	atc gcc att gct cgg gcc ctg gtt cgc aac ccc aag att ctt ctg ctg	1684
	Ile Ala Ile Ala Arg Ala Leu Val Arg Asn Pro Lys Ile Leu Leu Leu	
	545 550 555	
30	gat gag gca acg tca gct ctg gac act gaa agt gaa gca gtg gtt cag	1732
	Asp Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser Glu Ala Val Val Gln	
	560 565 570	
35	gtg gcc ctg gat aag gcc aga aaa ggc cgg act acc att gtg ata gct	1780
	Val Ala Leu Asp Lys Ala Arg Lys Gly Arg Thr Thr Ile Val Ile Ala	
	575 580 585	
40	cat cgt ttg tct aca gtt cgt aat gcc gat gtc att gct ggt ttt gat	1828
	His Arg Leu Ser Thr Val Arg Asn Ala Asp Val Ile Ala Gly Phe Asp	
	590 595 600	
45	gat gga gtc att gtg gag aaa gga aat cat gat gaa ctc atg aaa gag	1876
	Asp Gly Val Ile Val Glu Lys Gly Asn His Asp Glu Leu Met Lys Glu	
	605 610 615 620	
50	aag ggc att tac ttc aaa ctt gtc aca atg cag aca aga gga aat gaa	1924
	Lys Gly Ile Tyr Phe Lys Leu Val Thr Met Gln Thr Arg Gly Asn Glu	
	625 630 635	
55	att gag tta gaa aat gcc act ggt gaa tcc aaa agt gaa agt gat gcc	1972
	Ile Glu Leu Glu Asn Ala Thr Gly Glu Ser Lys Ser Glu Ser Asp Ala	
	640 645 650	
60	ttg gaa atg tct cca aaa gat tca ggg tcc agt tta ata aaa aga aga	2020
	Leu Glu Met Ser Pro Lys Asp Ser Gly Ser Ser Leu Ile Lys Arg Arg	
	655 660 665	
65	tca act cgc agg agt ata cat gca cca caa ggc caa gac aga aag ctt	2068
	Ser Thr Arg Arg Ser Ile His Ala Pro Gln Gly Gln Asp Arg Lys Leu	
	670 675 680	
70	ggg aca aaa gag gac ttg aat gag aat gta cct cca gtt tcc ttc tgg	2116
	Gly Thr Lys Glu Asp Leu Asn Glu Asn Val Pro Pro Val Ser Phe Trp	
	685 690 695 700	

	agg att ctg aag ctg aac tca act gaa tgg cct tat ttt gtg gtt ggt	2164
	Arg Ile Leu Lys Leu Asn Ser Thr Glu Trp Pro Tyr Phe Val Val Gly	
	705 710 715	
5	ata ttt tgt gct att ata aac gga ggc ctg caa cca gca ttt tca ata	2212
	Ile Phe Cys Ala Ile Ile Asn Gly Gly Leu Gln Pro Ala Phe Ser Ile	
	720 725 730	
10	ata ttt tca agg att ata ggg atc ttt acc cga gat gag gat cct gaa	2260
	Ile Phe Ser Arg Ile Ile Gly Ile Phe Thr Arg Asp Glu Asp Pro Glu	
	735 740 745	
15	aca aaa cga cag aat agt aac atg ttt tct gta ttg ttt cta gtc ctt	2308
	Thr Lys Arg Gln Asn Ser Asn Met Phe Ser Val Leu Phe Leu Val Leu	
	750 755 760	
20	gga att att tct ttt att aca ttt ttc ctc cag ggc ttc aca ttt ggc	2356
	Gly Ile Ile Ser Phe Ile Thr Phe Phe Leu Gln Gly Phe Thr Phe Gly	
	765 770 775 780	
25	aaa gct ggg gag atc ctc act aag cgg ctt cga tac atg gtt ttc aga	2404
	Lys Ala Gly Glu Ile Leu Thr Lys Arg Leu Arg Tyr Met Val Phe Arg	
	785 790 795	
30	tcc atg ctg aga cag gat gtc agc tgg ttt gat gac cct aaa aac acc	2452
	Ser Met Leu Arg Gln Asp Val Ser Trp Phe Asp Asp Pro Lys Asn Thr	
	800 805 810	
35	act gga gca ttg aca acc agg ctt gcc aat gat gcg gct caa gtt aaa	2500
	Thr Gly Ala Leu Thr Thr Arg Leu Ala Asn Asp Ala Ala Gln Val Lys	
	815 820 825	
40	ggg gct ata ggt tcc agg ctt gct gtc att acc cag aat ata gca aat	2548
	Gly Ala Ile Gly Ser Arg Leu Ala Val Ile Thr Gln Asn Ile Ala Asn	
	830 835 840	
45	ctt ggg aca ggc att att ata tcc tta atc tat ggt tgg caa tta aca	2596
	Leu Gly Thr Gly Ile Ile Ile Ser Leu Ile Tyr Gly Trp Gln Leu Thr	
	845 850 855 860	
50	ctt tta ctc tta gca att gta ccc atc att gca ata gca gga gtt gtt	2644
	Leu Leu Leu Leu Ala Ile Val Pro Ile Ile Ala Ile Ala Gly Val Val	
	865 870 875	
55	gaa atg aaa atg ttg tct gga caa gca ctg aaa gat aag aaa gag cta	2692
	Glu Met Lys Met Leu Ser Gly Gln Ala Leu Lys Asp Lys Lys Glu Leu	
	880 885 890	
60	gaa gga gct ggg aag att gct aca gaa gcc atc gaa aac ttc cga act	2740
	Glu Gly Ala Gly Lys Ile Ala Thr Glu Ala Ile Glu Asn Phe Arg Thr	
	895 900 905	
65	gtt gtt tct ttg act cgg gag cag aag ttt gaa tac atg tat gca cag	2788
	Val Val Ser Leu Thr Arg Glu Gln Lys Phe Glu Tyr Met Tyr Ala Gln	
	910 915 920	
70	agt ttg caa gta cca tac aga aac tct ttg agg aaa gca cac atc ttc	2836
	Ser Leu Gln Val Pro Tyr Arg Asn Ser Leu Arg Lys Ala His Ile Phe	
	925 930 935 940	

	ggg gtc tca ttt tct atc acc cag gca atg atg tat ttt tcc tat gct	2884
	Gly Val Ser Phe Ser Ile Thr Gln Ala Met Met Tyr Phe Ser Tyr Ala	
	945 950 955	
5	ggc tgt ttc cgg ttt ggt gcc tac ttg gtg gca aat gag ttc atg aac	2932
	Gly Cys Phe Arg Phe Gly Ala Tyr Leu Val Ala Asn Glu Phe Met Asn	
	960 965 970	
10	ttt cag gat gtt ctt ttg gta ttc tca gct att gtc ttt ggt gcc atg	2980
	Phe Gln Asp Val Leu Leu Val Phe Ser Ala Ile Val Phe Gly Ala Met	
	975 980 985	
15	gca gtg ggg cag gtc agt tca ttt gct cct gac tat gcc aaa gcc aaa	3028
	Ala Val Gly Gln Val Ser Ser Phe Ala Pro Asp Tyr Ala Lys Ala Lys	
	990 995 1000	
20	gta tca gca gcc cac gtc atc atg atc att gaa aaa agc cct ctg att	3076
	Val Ser Ala Ala His Val Ile Met Ile Ile Glu Lys Ser Pro Leu Ile	
	1005 1010 1015 1020	
25	gac agc tac agc cct cac ggc ctc aag cca aat acg ttg gaa gga aat	3124
	Asp Ser Tyr Ser Pro His Gly Leu Lys Pro Asn Thr Leu Glu Gly Asn	
	1025 1030 1035	
30	gtg aca ttt aat gag gtc gtg ttc aac tat ccc act cga cca gac atc	3172
	Val Thr Phe Asn Glu Val Val Phe Asn Tyr Pro Thr Arg Pro Asp Ile	
	1040 1045 1050	
35	ccc gtg ctc cag ggg ctg agc ctc gag gtg aag aag ggc cag acg ctg	3220
	Pro Val Leu Gln Gly Leu Ser Leu Glu Val Lys Lys Gly Gln Thr Leu	
	1055 1060 1065	
40	gcc ctc gta ggt agc agt ggc tgt ggg aag agc aca gtt gtt cag ctc	3268
	Ala Leu Val Gly Ser Ser Gly Cys Gly Lys Ser Thr Val Val Gln Leu	
	1070 1075 1080	
45	cta gag cgc ttc tat gac ccc ttg gct ggt tca gtg cta att gat ggc	3316
	Leu Glu Arg Phe Tyr Asp Pro Leu Ala Gly Ser Val Leu Ile Asp Gly	
	1085 1090 1095 1100	
50	aaa gag ata aag cac ctg aat gtc cag tgg ctc cga gca cac ctg ggc	3364
	Lys Glu Ile Lys His Leu Asn Val Gln Trp Leu Arg Ala His Leu Gly	
	1105 1110 1115	
55	atc gtg tct cag gag ccc atc ctg ttt gac tgc agc att gcc gag aac	3412
	Ile Val Ser Gln Glu Pro Ile Leu Phe Asp Cys Ser Ile Ala Glu Asn	
	1120 1125 1130	
60	att gcc tat gga gac aac agc cgg gtc gta tca cat gaa gag att atg	3460
	Ile Ala Tyr Gly Asp Asn Ser Arg Val Val Ser His Glu Glu Ile Met	
	1135 1140 1145	
65	cag gca gcc aag gag gcc aac ata cac cac ttc atc gag aca ctc cct	3508
	Gln Ala Ala Lys Glu Ala Asn Ile His His Phe Ile Glu Thr Leu Pro	
	1150 1155 1160	
70	gag aaa tac aac acc aga gta gga gac aaa gga acc cag ctc tct ggt	3556
	Glu Lys Tyr Asn Thr Arg Val Gly Asp Lys Gly Thr Gln Leu Ser Gly	
	1165 1170 1175 1180	

	ggc cag aaa cag cgc att gcc ata gct cgc gct ctt gtt aga cag cct	3604
	Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg Ala Leu Val Arg Gln Pro	
	1185 1190 1195	
5	cat att ttg ctt ttg gat gaa gct aca tca gct ctg gat aca gaa agt	3652
	His Ile Leu Leu Leu Asp Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser	
	1200 1205 1210	
10	gaa aag gtt gtc caa gaa gcc ctg gac aaa gcc aga gaa ggc cgc acc	3700
	Glu Lys Val Val Gln Glu Ala Leu Asp Lys Ala Arg Glu Gly Arg Thr	
	1215 1220 1225	
15	tgc att gtg atc gcc cac cgc ttg tcc acc atc cag aat gca gat tta	3748
	Cys Ile Val Ile Ala His Arg Leu Ser Thr Ile Gln Asn Ala Asp Leu	
	1230 1235 1240	
20	ata gtg gtg ttt cag aat gcc aaa gtc aag gag cat ggc aca cat caa	3796
	Ile Val Val Phe Gln Asn Gly Lys Val Lys Glu His Gly Thr His Gln	
	1245 1250 1255 1260	
	cag ctg ctg gcc cag aaa ggc atc tat ttt tcc atg gtc agt gtc cag	3844
	Gln Leu Leu Ala Gln Lys Gly Ile Tyr Phe Ser Met Val Ser Val Gln	
	1265 1270 1275	
25	gct gga gca aag cgc tagtgaactg tggccatatg agctgttaaa tatttttttaa	3899
	Ala Gly Ala Lys Arg	
	1280	
30	tatttgtggtt aaaacatggc atttaaatcaa agttaaagg tgagcactta ctggaaaaac	3959
	tatgtagaac tacctgttta acatttcttg ctgcaactga agatcattcc accaagttca	4019
	gagtccttcag attttataat taaaggaacc aaaagaaaca ttatctgatg gaataaaata	4079
	ctgggtgttaa ttgcattata aaattataga gtaattcaaaa gtagattttg ttaataaatt	4139
	gtataatttt tgtttatatt ttatttgttaa cttactgctt tgctgaaaga ttatagaagt	4199
	ggtaaaaaagt actgaatggt tgaataaagt gctagctata ataaaaactaa actttttatat	4259
35	caaaaaaaaa aaaaaaaaaa	4279
	<210> 25	
	<211> 1281	
	<212> PRT	
40	<213> Canis familiaris	
	<400> 25	
	Met Asp Pro Glu Gly Gly Arg Lys Gly Ser Ala Glu Lys Asn Phe Trp	
	1 5 10 15	
45	Lys Met Gly Lys Lys Ser Lys Lys Lys Glu Lys Lys Glu Lys Lys Pro	
	20 25 30	
	Thr Val Ser Thr Phe Ala Met Phe Arg Tyr Ser Asn Trp Leu Asp Arg	
	35 40 45	
50	Leu Tyr Met Leu Val Gly Thr Met Ala Ala Ile Ile His Gly Ala Ala	
	50 55 60	
	Leu Pro Leu Met Met Leu Val Phe Gly Asn Met Thr Asp Ser Phe Ala	
	65 70 75 80	
	Asn Ala Gly Ile Ser Arg Asn Lys Thr Phe Pro Val Ile Ile Asn Glu	
	85 90 95	
55	Ser Ile Thr Asn Asn Thr Gln His Phe Ile Asn His Leu Glu Glu Glu	
	100 105 110	
	Met Thr Thr Tyr Ala Tyr Tyr Tyr Ser Gly Ile Gly Ala Gly Val Leu	
	115 120 125	
60	Val Ala Ala Tyr Ile Gln Val Ser Phe Trp Cys Leu Ala Ala Gly Arg	
	130 135 140	

	Gln	Ile	Leu	Lys	Ile	Arg	Lys	Gln	Phe	Phe	His	Ala	Ile	Met	Arg	Gln	
	145					150					155					160	
	Glu	Ile	Gly	Trp	Phe	Asp	Val	His	Asp	Val	Gly	Glu	Leu	Asn	Thr	Arg	
					165					170						175	
5	Leu	Thr	Asp	Asp	Val	Ser	Lys	Ile	Asn	Glu	Gly	Ile	Gly	Asp	Lys	Ile	
				180					185					190			
	Gly	Met	Phe	Phe	Gln	Ser	Ile	Ala	Thr	Phe	Phe	Thr	Gly	Phe	Ile	Val	
		195						200					205				
10	Gly	Phe	Thr	Arg	Gly	Trp	Lys	Leu	Thr	Leu	Val	Ile	Leu	Ala	Ile	Ser	
		210					215					220					
	Pro	Val	Leu	Gly	Leu	Ser	Ala	Ala	Ile	Trp	Ala	Lys	Ile	Leu	Ser	Ser	
	225					230					235					240	
	Phe	Thr	Asp	Lys	Glu	Leu	Leu	Ala	Tyr	Ala	Lys	Ala	Gly	Ala	Val	Ala	
				245						250					255		
15	Glu	Glu	Val	Leu	Ala	Ala	Ile	Arg	Thr	Val	Ile	Ala	Phe	Gly	Gly	Gln	
			260						265					270			
	Lys	Lys	Glu	Leu	Glu	Arg	Tyr	Asn	Lys	Asn	Leu	Glu	Glu	Ala	Lys	Gly	
			275					280					285				
20	Ile	Gly	Ile	Lys	Lys	Ala	Ile	Thr	Ala	Asn	Ile	Ser	Ile	Gly	Ala	Ala	
		290					295					300					
	Phe	Leu	Leu	Ile	Tyr	Ala	Ser	Tyr	Ala	Leu	Ala	Phe	Trp	Tyr	Gly	Thr	
	305					310					315					320	
	Ser	Leu	Val	Leu	Ser	Ser	Glu	Tyr	Ser	Ile	Gly	Gln	Val	Leu	Thr	Val	
				325						330					335		
25	Phe	Phe	Ser	Val	Leu	Ile	Gly	Ala	Phe	Ser	Ile	Gly	Gln	Ala	Ser	Pro	
			340						345					350			
	Ser	Ile	Glu	Ala	Phe	Ala	Asn	Ala	Arg	Gly	Ala	Ala	Tyr	Glu	Ile	Phe	
		355					360						365				
30	Lys	Ile	Ile	Asp	Asn	Lys	Pro	Ser	Ile	Asp	Ser	Tyr	Ser	Lys	Ser	Gly	
		370				375						380					
	His	Lys	Pro	Asp	Asn	Ile	Lys	Gly	Asn	Leu	Glu	Phe	Lys	Asn	Val	His	
	385				390						395					400	
	Phe	Ser	Tyr	Pro	Ser	Arg	Lys	Glu	Val	Lys	Ile	Leu	Lys	Gly	Leu	Asn	
				405						410					415		
35	Leu	Lys	Val	Gln	Ser	Gly	Gln	Thr	Val	Ala	Leu	Val	Gly	Asn	Ser	Gly	
			420						425					430			
	Cys	Gly	Lys	Ser	Thr	Thr	Val	Gln	Leu	Met	Gln	Arg	Leu	Tyr	Asp	Pro	
		435						440					445				
40	Thr	Asp	Gly	Met	Val	Cys	Ile	Asp	Gly	Gln	Asp	Ile	Arg	Thr	Ile	Asn	
		450					455					460					
	Val	Arg	His	Leu	Arg	Glu	Ile	Thr	Gly	Val	Val	Ser	Gln	Glu	Pro	Val	
	465					470					475					480	
	Leu	Phe	Ala	Thr	Thr	Ile	Ala	Glu	Asn	Ile	Arg	Tyr	Gly	Arg	Glu	Asn	
				485						490					495		
45	Val	Thr	Met	Asp	Glu	Ile	Glu	Lys	Ala	Val	Lys	Glu	Ala	Asn	Ala	Tyr	
			500						505					510			
	Asp	Phe	Ile	Met	Lys	Leu	Pro	Asn	Lys	Phe	Asp	Thr	Leu	Val	Gly	Glu	
		515						520					525				
50	Arg	Gly	Ala	Gln	Leu	Ser	Gly	Gly	Gln	Lys	Gln	Arg	Ile	Ala	Ile	Ala	
		530					535					540					
	Arg	Ala	Leu	Val	Arg	Asn	Pro	Lys	Ile	Leu	Leu	Leu	Asp	Glu	Ala	Thr	
	545					550					555					560	
	Ser	Ala	Leu	Asp	Thr	Glu	Ser	Glu	Ala	Val	Val	Gln	Val	Ala	Leu	Asp	
				565						570					575		
55	Lys	Ala	Arg	Lys	Gly	Arg	Thr	Thr	Ile	Val	Ile	Ala	His	Arg	Leu	Ser	
			580						585					590			
	Thr	Val	Arg	Asn	Ala	Asp	Val	Ile	Ala	Gly	Phe	Asp	Asp	Gly	Val	Ile	
		595						600					605				
60	Val	Glu	Lys	Gly	Asn	His	Asp	Glu	Leu	Met	Lys	Glu	Lys	Gly	Ile	Tyr	
		610					615					620					

	Phe	Lys	Leu	Val	Thr	Met	Gln	Thr	Arg	Gly	Asn	Glu	Ile	Glu	Leu	Glu	
	625					630					635					640	
	Asn	Ala	Thr	Gly	Glu	Ser	Lys	Ser	Glu	Ser	Asp	Ala	Leu	Glu	Met	Ser	
					645					650					655		
5	Pro	Lys	Asp	Ser	Gly	Ser	Ser	Leu	Ile	Lys	Arg	Arg	Ser	Thr	Arg	Arg	
				660					665					670			
	Ser	Ile	His	Ala	Pro	Gln	Gly	Gln	Asp	Arg	Lys	Leu	Gly	Thr	Lys	Glu	
			675					680					685				
10	Asp	Leu	Asn	Glu	Asn	Val	Pro	Pro	Val	Ser	Phe	Trp	Arg	Ile	Leu	Lys	
	690						695					700					
	Leu	Asn	Ser	Thr	Glu	Trp	Pro	Tyr	Phe	Val	Val	Gly	Ile	Phe	Cys	Ala	
	705					710					715					720	
	Ile	Ile	Asn	Gly	Gly	Leu	Gln	Pro	Ala	Phe	Ser	Ile	Ile	Phe	Ser	Arg	
				725						730					735		
15	Ile	Ile	Gly	Ile	Phe	Thr	Arg	Asp	Glu	Asp	Pro	Glu	Thr	Lys	Arg	Gln	
			740						745					750			
	Asn	Ser	Asn	Met	Phe	Ser	Val	Leu	Phe	Leu	Val	Leu	Gly	Ile	Ile	Ser	
			755					760					765				
20	Phe	Ile	Thr	Phe	Phe	Leu	Gln	Gly	Phe	Thr	Phe	Gly	Lys	Ala	Gly	Glu	
	770						775					780					
	Ile	Leu	Thr	Lys	Arg	Leu	Arg	Tyr	Met	Val	Phe	Arg	Ser	Met	Leu	Arg	
	785					790					795					800	
	Gln	Asp	Val	Ser	Trp	Phe	Asp	Asp	Pro	Lys	Asn	Thr	Thr	Gly	Ala	Leu	
				805						810					815		
25	Thr	Thr	Arg	Leu	Ala	Asn	Asp	Ala	Ala	Gln	Val	Lys	Gly	Ala	Ile	Gly	
			820					825						830			
	Ser	Arg	Leu	Ala	Val	Ile	Thr	Gln	Asn	Ile	Ala	Asn	Leu	Gly	Thr	Gly	
			835					840					845				
30	Ile	Ile	Ile	Ser	Leu	Ile	Tyr	Gly	Trp	Gln	Leu	Thr	Leu	Leu	Leu	Leu	
	850						855					860					
	Ala	Ile	Val	Pro	Ile	Ile	Ala	Ile	Ala	Gly	Val	Val	Glu	Met	Lys	Met	
	865					870					875					880	
	Leu	Ser	Gly	Gln	Ala	Leu	Lys	Asp	Lys	Lys	Glu	Leu	Glu	Gly	Ala	Gly	
				885						890					895		
35	Lys	Ile	Ala	Thr	Glu	Ala	Ile	Glu	Asn	Phe	Arg	Thr	Val	Val	Ser	Leu	
			900						905					910			
	Thr	Arg	Glu	Gln	Lys	Phe	Glu	Tyr	Met	Tyr	Ala	Gln	Ser	Leu	Gln	Val	
			915					920					925				
40	Pro	Tyr	Arg	Asn	Ser	Leu	Arg	Lys	Ala	His	Ile	Phe	Gly	Val	Ser	Phe	
	930						935					940					
	Ser	Ile	Thr	Gln	Ala	Met	Met	Tyr	Phe	Ser	Tyr	Ala	Gly	Cys	Phe	Arg	
	945					950					955					960	
	Phe	Gly	Ala	Tyr	Leu	Val	Ala	Asn	Glu	Phe	Met	Asn	Phe	Gln	Asp	Val	
				965						970					975		
45	Leu	Leu	Val	Phe	Ser	Ala	Ile	Val	Phe	Gly	Ala	Met	Ala	Val	Gly	Gln	
			980						985					990			
	Val	Ser	Ser	Phe	Ala	Pro	Asp	Tyr	Ala	Lys	Ala	Lys	Val	Ser	Ala	Ala	
			995					1000					1005				
50	His	Val	Ile	Met	Ile	Ile	Glu	Lys	Ser	Pro	Leu	Ile	Asp	Ser	Tyr	Ser	
	1010						1015					1020					
	Pro	His	Gly	Leu	Lys	Pro	Asn	Thr	Leu	Glu	Gly	Asn	Val	Thr	Phe	Asn	
	1025					1030					1035					1040	
	Glu	Val	Val	Phe	Asn	Tyr	Pro	Thr	Arg	Pro	Asp	Ile	Pro	Val	Leu	Gln	
				1045						1050					1055		
55	Gly	Leu	Ser	Leu	Glu	Val	Lys	Lys	Gly	Gln	Thr	Leu	Ala	Leu	Val	Gly	
			1060						1065					1070			
	Ser	Ser	Gly	Cys	Gly	Lys	Ser	Thr	Val	Val	Gln	Leu	Leu	Glu	Arg	Phe	
			1075					1080					1085				
60	Tyr	Asp	Pro	Leu	Ala	Gly	Ser	Val	Leu	Ile	Asp	Gly	Lys	Glu	Ile	Lys	
	1090						1095					1100					

	His Leu Asn Val Gln Trp Leu Arg Ala His Leu Gly Ile Val Ser Gln	
	1105 1110 1115 1120	
	Glu Pro Ile Leu Phe Asp Cys Ser Ile Ala Glu Asn Ile Ala Tyr Gly	
	1125 1130 1135	
5	Asp Asn Ser Arg Val Val Ser His Glu Glu Ile Met Gln Ala Ala Lys	
	1140 1145 1150	
	Glu Ala Asn Ile His His Phe Ile Glu Thr Leu Pro Glu Lys Tyr Asn	
	1155 1160 1165	
10	Thr Arg Val Gly Asp Lys Gly Thr Gln Leu Ser Gly Gly Gln Lys Gln	
	1170 1175 1180	
	Arg Ile Ala Ile Ala Arg Ala Leu Val Arg Gln Pro His Ile Leu Leu	
	1185 1190 1195 1200	
	Leu Asp Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser Glu Lys Val Val	
	1205 1210 1215	
15	Gln Glu Ala Leu Asp Lys Ala Arg Glu Gly Arg Thr Cys Ile Val Ile	
	1220 1225 1230	
	Ala His Arg Leu Ser Thr Ile Gln Asn Ala Asp Leu Ile Val Val Phe	
	1235 1240 1245	
20	Gln Asn Gly Lys Val Lys Glu His Gly Thr His Gln Gln Leu Leu Ala	
	1250 1255 1260	
	Gln Lys Gly Ile Tyr Phe Ser Met Val Ser Val Gln Ala Gly Ala Lys	
	1265 1270 1275 1280	
	Arg	
25	<210> 26	
	<211> 4279	
	<212> DNA	
	<213> Canis familiaris	
30	<220>	
	<221> CDS	
	<222> (17)...(3859)	
35	<400> 26	
	ggagcgcgag gtcggg atg gat cct gaa gga ggc cgt aag ggg agt gca gag	52
	Met Asp Pro Glu Gly Gly Arg Lys Gly Ser Ala Glu	
	1 5 10	
40	aag aac ttc tgg aaa atg ggc aaa aaa agt aaa aaa aaa gag aag aaa	100
	Lys Asn Phe Trp Lys Met Gly Lys Lys Ser Lys Lys Lys Glu Lys Lys	
	15 20 25	
45	gaa aag aaa cca act gtc agc acg ttt gca atg ttt cgc tat tca aat	148
	Glu Lys Lys Pro Thr Val Ser Thr Phe Ala Met Phe Arg Tyr Ser Asn	
	30 35 40	
50	tgg ctt gat agg ttg tat atg ttg gtg ggg aca atg gct gcc atc atc	196
	Trp Leu Asp Arg Leu Tyr Met Leu Val Gly Thr Met Ala Ala Ile Ile	
	45 50 55 60	
55	cat gga gct gca ctc cct ctc atg atg ctg gtt ttt gga aac atg aca	244
	His Gly Ala Ala Leu Pro Leu Met Met Leu Val Phe Gly Asn Met Thr	
	65 70 75	
60	gat agc ttt gca aat gca gga att tca aga aac aaa act ttt cca gtt	292
	Asp Ser Phe Ala Asn Ala Gly Ile Ser Arg Asn Lys Thr Phe Pro Val	
	80 85 90	
60	ata att aat gaa agt att acg aac aat aca caa cat ttc atc aac cat	340

	Ile	Ile	Asn	Glu	Ser	Ile	Thr	Asn	Asn	Thr	Gln	His	Phe	Ile	Asn	His	
			95					100					105				
5	ctg	gag	gag	gaa	atg	acc	acg	tat	gcc	tat	tat	tac	agt	ggg	atc	ggt	388
	Leu	Glu	Glu	Glu	Met	Thr	Thr	Tyr	Ala	Tyr	Tyr	Tyr	Ser	Gly	Ile	Gly	
		110					115					120					
10	gct	ggc	gtg	ctg	gtg	gct	gct	tac	atc	cag	gtt	tca	ttc	tgg	tgc	ctg	436
	Ala	Gly	Val	Leu	Val	Ala	Ala	Tyr	Ile	Gln	Val	Ser	Phe	Trp	Cys	Leu	
	125					130					135					140	
15	gca	gca	gga	aga	cag	ata	ctc	aaa	att	aga	aaa	caa	ttt	ttt	cat	gct	484
	Ala	Ala	Gly	Arg	Gln	Ile	Leu	Lys	Ile	Arg	Lys	Gln	Phe	Phe	His	Ala	
					145					150					155		
	atc	atg	cga	cag	gag	att	ggc	tgg	ttt	gac	gtg	cat	gac	gtt	ggg	gag	532
	Ile	Met	Arg	Gln	Glu	Ile	Gly	Trp	Phe	Asp	Val	His	Asp	Val	Gly	Glu	
				160					165					170			
20	ctt	aac	acc	cgg	ctc	aca	gac	gat	gtc	tcc	aaa	atc	aat	gaa	gga	att	580
	Leu	Asn	Thr	Arg	Leu	Thr	Asp	Asp	Val	Ser	Lys	Ile	Asn	Glu	Gly	Ile	
			175					180					185				
25	ggc	gac	aaa	att	gga	atg	ttc	ttt	caa	tca	ata	gca	aca	ttt	ttc	acc	628
	Gly	Asp	Lys	Ile	Gly	Met	Phe	Phe	Gln	Ser	Ile	Ala	Thr	Phe	Phe	Thr	
		190					195					200					
30	ggt	ttt	ata	gtg	ggg	ttt	aca	cgt	ggt	tgg	aag	cta	acc	ctt	gtg	att	676
	Gly	Phe	Ile	Val	Gly	Phe	Thr	Arg	Gly	Trp	Lys	Leu	Thr	Leu	Val	Ile	
	205					210					215					220	
35	ttg	gcc	atc	agc	cct	gtt	ctt	gga	ctt	tca	gcc	gcc	atc	tgg	gca	aag	724
	Leu	Ala	Ile	Ser	Pro	Val	Leu	Gly	Leu	Ser	Ala	Ala	Ile	Trp	Ala	Lys	
					225					230					235		
	ata	cta	tct	tca	ttt	act	gat	aaa	gaa	ctc	ttg	gcc	tat	gca	aaa	gct	772
	Ile	Leu	Ser	Ser	Phe	Thr	Asp	Lys	Glu	Leu	Leu	Ala	Tyr	Ala	Lys	Ala	
				240					245					250			
40	gga	gca	gta	gct	gaa	gaa	gtc	tta	gca	gca	atc	aga	act	gtg	att	gcc	820
	Gly	Ala	Val	Ala	Glu	Glu	Val	Leu	Ala	Ala	Ile	Arg	Thr	Val	Ile	Ala	
			255					260					265				
45	ttt	gga	gga	caa	aag	aaa	gaa	ctt	gaa	agg	tac	aac	aaa	aat	tta	gaa	868
	Phe	Gly	Gly	Gln	Lys	Lys	Glu	Leu	Glu	Arg	Tyr	Asn	Lys	Asn	Leu	Glu	
		270					275					280					
50	gaa	gct	aaa	gga	att	ggg	ata	aag	aaa	gct	atc	acg	gcc	aac	att	tct	916
	Glu	Ala	Lys	Gly	Ile	Gly	Ile	Lys	Lys	Ala	Ile	Thr	Ala	Asn	Ile	Ser	
	285					290					295					300	
55	att	ggt	gcc	gct	ttc	tta	ttg	atc	tat	gca	tca	tat	gct	ctg	gct	ttc	964
	Ile	Gly	Ala	Ala	Phe	Leu	Leu	Ile	Tyr	Ala	Ser	Tyr	Ala	Leu	Ala	Phe	
					305					310					315		
	tgg	tat	ggg	acc	tcc	ttg	gtc	ctc	tcc	agt	gaa	tat	act	att	gga	caa	1012
	Trp	Tyr	Gly	Thr	Ser	Leu	Val	Leu	Ser	Ser	Glu	Tyr	Thr	Ile	Gly	Gln	
				320					325					330			
60	gta	ctc	act	gtc	ttc	ttt	tct	gta	tta	att	ggg	gct	ttt	agt	att	gga	1060

	Val	Leu	Thr	Val	Phe	Phe	Ser	Val	Leu	Ile	Gly	Ala	Phe	Ser	Ile	Gly	
			335						340					345			
5	cag	gca	tcc	cca	agc	att	gaa	gca	ttt	gca	aac	gca	aga	gga	gca	gct	1108
	Gln	Ala	Ser	Pro	Ser	Ile	Glu	Ala	Phe	Ala	Asn	Ala	Arg	Gly	Ala	Ala	
			350					355				360					
10	tat	gaa	atc	ttc	aag	ata	att	gac	aat	aaa	cca	agc	att	gac	agc	tat	1156
	Tyr	Glu	Ile	Phe	Lys	Ile	Ile	Asp	Asn	Lys	Pro	Ser	Ile	Asp	Ser	Tyr	
			365			370					375					380	
15	tcg	aag	agt	gga	cat	aaa	cca	gat	aat	att	aag	gga	aat	ttg	gaa	ttc	1204
	Ser	Lys	Ser	Gly	His	Lys	Pro	Asp	Asn	Ile	Lys	Gly	Asn	Leu	Glu	Phe	
					385					390					395		
	aaa	aat	gtt	cac	ttc	agt	tac	cct	tct	cga	aaa	gaa	gtt	aag	atc	tta	1252
	Lys	Asn	Val	His	Phe	Ser	Tyr	Pro	Ser	Arg	Lys	Glu	Val	Lys	Ile	Leu	
				400					405					410			
20	aag	ggt	ctc	aac	ctg	aag	gtt	cag	agt	ggg	cag	aca	gtg	gcg	ctg	gtt	1300
	Lys	Gly	Leu	Asn	Leu	Lys	Val	Gln	Ser	Gly	Gln	Thr	Val	Ala	Leu	Val	
			415					420					425				
25	ggg	aac	agt	ggc	tgc	ggg	aag	agc	acg	acc	gtg	cag	ctg	atg	cag	agg	1348
	Gly	Asn	Ser	Gly	Cys	Gly	Lys	Ser	Thr	Thr	Val	Gln	Leu	Met	Gln	Arg	
		430					435					440					
30	ctc	tat	gac	ccc	aca	gat	ggc	atg	gtc	tgt	att	gat	gga	cag	gac	att	1396
	Leu	Tyr	Asp	Pro	Thr	Asp	Gly	Met	Val	Cys	Ile	Asp	Gly	Gln	Asp	Ile	
		445				450					455					460	
35	agg	acc	ata	aat	gta	agg	cat	ctt	cgg	gaa	att	act	ggt	gtg	gtg	agt	1444
	Arg	Thr	Ile	Asn	Val	Arg	His	Leu	Arg	Glu	Ile	Thr	Gly	Val	Val	Ser	
				465						470					475		
	cag	gag	cct	gtg	ttg	ttt	gcc	acc	acg	ata	gct	gaa	aac	att	cgc	tat	1492
	Gln	Glu	Pro	Val	Leu	Phe	Ala	Thr	Thr	Ile	Ala	Glu	Asn	Ile	Arg	Tyr	
				480					485					490			
40	ggc	cgc	gaa	aat	gtc	acc	atg	gat	gag	att	gag	aaa	gct	gtt	aag	gaa	1540
	Gly	Arg	Glu	Asn	Val	Thr	Met	Asp	Glu	Ile	Glu	Lys	Ala	Val	Lys	Glu	
			495					500					505				
45	gcc	aat	gcc	tat	gat	ttt	atc	atg	aaa	cta	cct	aat	aaa	ttt	gac	act	1588
	Ala	Asn	Ala	Tyr	Asp	Phe	Ile	Met	Lys	Leu	Pro	Asn	Lys	Phe	Asp	Thr	
		510					515					520					
50	ctg	gtt	gga	gag	aga	ggg	gcc	cag	ctg	agt	ggt	gga	cag	aaa	cag	aga	1636
	Leu	Val	Gly	Glu	Arg	Gly	Ala	Gln	Leu	Ser	Gly	Gly	Gln	Lys	Gln	Arg	
		525				530					535					540	
55	atc	gcc	att	gct	cgg	gcc	ctg	gtt	cgc	aac	ccc	aag	att	ctt	ctg	ctg	1684
	Ile	Ala	Ile	Ala	Arg	Ala	Leu	Val	Arg	Asn	Pro	Lys	Ile	Leu	Leu	Leu	
					545					550					555		
	gat	gag	gca	acg	tca	gct	ctg	gac	act	gaa	agt	gaa	gca	gtg	gtt	cag	1732
	Asp	Glu	Ala	Thr	Ser	Ala	Leu	Asp	Thr	Glu	Ser	Glu	Ala	Val	Val	Gln	
				560				565						570			
60	gtg	gcc	ctg	gat	aag	gcc	aga	aaa	ggc	cgg	act	acc	att	gtg	ata	gct	1780

	Val	Ala	Leu	Asp	Lys	Ala	Arg	Lys	Gly	Arg	Thr	Thr	Ile	Val	Ile	Ala	
			575						580					585			
5	cat	cgt	ttg	tct	aca	gtt	cgt	aat	gcc	gat	gtc	att	gct	ggg	ttt	gat	1828
	His	Arg	Leu	Ser	Thr	Val	Arg	Asn	Ala	Asp	Val	Ile	Ala	Gly	Phe	Asp	
			590					595				600					
10	gat	gga	gtc	att	gtg	gag	aaa	gga	aat	cat	gat	gaa	ctc	atg	aaa	gag	1876
	Asp	Gly	Val	Ile	Val	Glu	Lys	Gly	Asn	His	Asp	Glu	Leu	Met	Lys	Glu	
			605			610					615				620		
15	aag	ggc	att	tac	ttc	aaa	ctt	gtc	aca	atg	cag	aca	aga	gga	aat	gaa	1924
	Lys	Gly	Ile	Tyr	Phe	Lys	Leu	Val	Thr	Met	Gln	Thr	Arg	Gly	Asn	Glu	
					625					630					635		
	att	gag	tta	gaa	aat	gcc	act	ggg	gaa	tcc	aaa	agt	gaa	agt	gat	gcc	1972
	Ile	Glu	Leu	Glu	Asn	Ala	Thr	Gly	Glu	Ser	Lys	Ser	Glu	Ser	Asp	Ala	
				640					645					650			
20	ttg	gaa	atg	tct	cca	aaa	gat	tca	ggg	tcc	agt	tta	ata	aaa	aga	aga	2020
	Leu	Glu	Met	Ser	Pro	Lys	Asp	Ser	Gly	Ser	Ser	Leu	Ile	Lys	Arg	Arg	
			655					660					665				
25	tca	act	cgc	agg	agt	ata	cat	gca	cca	caa	ggc	caa	gac	aga	aag	ctt	2068
	Ser	Thr	Arg	Arg	Ser	Ile	His	Ala	Pro	Gln	Gly	Gln	Asp	Arg	Lys	Leu	
			670				675					680					
30	ggg	aca	aaa	gag	gac	ttg	aat	gag	aat	gta	cct	cca	gtt	tcc	ttc	tgg	2116
	Gly	Thr	Lys	Glu	Asp	Leu	Asn	Glu	Asn	Val	Pro	Pro	Val	Ser	Phe	Trp	
			685			690					695					700	
35	agg	att	ctg	aag	ctg	aac	tca	act	gaa	tgg	cct	tat	ttt	gtg	gtt	ggg	2164
	Arg	Ile	Leu	Lys	Leu	Asn	Ser	Thr	Glu	Trp	Pro	Tyr	Phe	Val	Val	Gly	
				705						710					715		
	ata	ttt	tgt	gct	att	ata	aac	gga	ggc	ctg	caa	cca	gca	ttt	tca	ata	2212
	Ile	Phe	Cys	Ala	Ile	Ile	Asn	Gly	Gly	Leu	Gln	Pro	Ala	Phe	Ser	Ile	
				720					725					730			
40	ata	ttt	tca	agg	att	ata	ggg	atc	ttt	acc	cga	gat	gag	gat	cct	gaa	2260
	Ile	Phe	Ser	Arg	Ile	Ile	Gly	Ile	Phe	Thr	Arg	Asp	Glu	Asp	Pro	Glu	
			735				740						745				
45	aca	aaa	cga	cag	aat	agt	aac	atg	ttt	tct	gta	ttg	ttt	cta	gtc	ctt	2308
	Thr	Lys	Arg	Gln	Asn	Ser	Asn	Met	Phe	Ser	Val	Leu	Phe	Leu	Val	Leu	
			750				755					760					
50	gga	att	att	tct	ttt	att	aca	ttt	ttc	ctc	cag	ggc	ttc	aca	ttt	ggc	2356
	Gly	Ile	Ile	Ser	Phe	Ile	Thr	Phe	Phe	Leu	Gln	Gly	Phe	Thr	Phe	Gly	
			765			770				775						780	
55	aaa	gct	ggg	gag	atc	ctc	act	aag	cgg	ctt	cga	tac	atg	gtt	ttc	aga	2404
	Lys	Ala	Gly	Glu	Ile	Leu	Thr	Lys	Arg	Leu	Arg	Tyr	Met	Val	Phe	Arg	
				785					790						795		
	tcc	atg	ctg	aga	cag	gat	gtc	agc	tgg	ttt	gat	gac	cct	aaa	aac	acc	2452
	Ser	Met	Leu	Arg	Gln	Asp	Val	Ser	Trp	Phe	Asp	Asp	Pro	Lys	Asn	Thr	
				800					805					810			
60	act	gga	gca	ttg	aca	acc	agg	ctt	gcc	aat	gat	gcg	gct	caa	gtt	aaa	2500

	Thr	Gly	Ala	Leu	Thr	Thr	Arg	Leu	Ala	Asn	Asp	Ala	Ala	Gln	Val	Lys	
			815					820					825				
5	ggg	gct	ata	ggc	tcc	agg	ctt	gct	gtc	att	acc	cag	aat	ata	gca	aat	2548
	Gly	Ala	Ile	Gly	Ser	Arg	Leu	Ala	Val	Ile	Thr	Gln	Asn	Ile	Ala	Asn	
			830				835					840					
10	ctt	ggg	aca	ggc	att	att	ata	tcc	tta	atc	tat	ggt	tgg	caa	tta	aca	2596
	Leu	Gly	Thr	Gly	Ile	Ile	Ile	Ser	Leu	Ile	Tyr	Gly	Trp	Gln	Leu	Thr	
						850					855					860	
15	ctt	tta	ctc	tta	gca	att	gta	ccc	atc	att	gca	ata	gca	gga	gtt	gtt	2644
	Leu	Leu	Leu	Leu	Ala	Ile	Val	Pro	Ile	Ile	Ala	Ile	Ala	Gly	Val	Val	
						865					870					875	
	gaa	atg	aaa	atg	ttg	tct	gga	caa	gca	ctg	aaa	gat	aag	aaa	gag	cta	2692
	Glu	Met	Lys	Met	Leu	Ser	Gly	Gln	Ala	Leu	Lys	Asp	Lys	Lys	Glu	Leu	
						880			885						890		
20	gaa	gga	gct	ggg	aag	att	gct	aca	gaa	gcc	atc	gaa	aac	ttc	cga	act	2740
	Glu	Gly	Ala	Gly	Lys	Ile	Ala	Thr	Glu	Ala	Ile	Glu	Asn	Phe	Arg	Thr	
						895		900						905			
25	gtt	gtt	tct	ttg	act	cgg	gag	cag	aag	ttt	gaa	tac	atg	tat	gca	cag	2788
	Val	Val	Ser	Leu	Thr	Arg	Glu	Gln	Lys	Phe	Glu	Tyr	Met	Tyr	Ala	Gln	
			910				915					920					
30	agt	ttg	caa	gta	cca	tac	aga	aac	tct	ttg	agg	aaa	gca	cac	atc	ttc	2836
	Ser	Leu	Gln	Val	Pro	Tyr	Arg	Asn	Ser	Leu	Arg	Lys	Ala	His	Ile	Phe	
						930					935					940	
35	ggg	gtc	tca	ttt	tct	atc	acc	cag	gca	atg	atg	tat	ttt	tcc	tat	gct	2884
	Gly	Val	Ser	Phe	Ser	Ile	Thr	Gln	Ala	Met	Met	Tyr	Phe	Ser	Tyr	Ala	
						945				950						955	
	ggc	tgt	ttc	cgg	ttt	ggt	gcc	tac	ttg	gtg	gca	aat	gag	ttc	atg	aac	2932
	Gly	Cys	Phe	Arg	Phe	Gly	Ala	Tyr	Leu	Val	Ala	Asn	Glu	Phe	Met	Asn	
						960			965						970		
40	ttt	cag	gat	gtt	ctt	ttg	gta	ttc	tca	gct	att	gtc	ttt	ggt	gcc	atg	2980
	Phe	Gln	Asp	Val	Leu	Leu	Val	Phe	Ser	Ala	Ile	Val	Phe	Gly	Ala	Met	
						975		980						985			
45	gca	gtg	ggg	cag	gtc	agt	tca	ttt	gct	cct	gac	tat	gcc	aaa	gcc	aaa	3028
	Ala	Val	Gly	Gln	Val	Ser	Ser	Phe	Ala	Pro	Asp	Tyr	Ala	Lys	Ala	Lys	
						990		995			1000						
50	gta	tca	gca	gcc	cac	gtc	atc	atg	atc	att	gaa	aaa	agc	cct	ctg	att	3076
	Val	Ser	Ala	Ala	His	Val	Ile	Met	Ile	Ile	Glu	Lys	Ser	Pro	Leu	Ile	
						1005		1010			1015					1020	
55	gac	agc	tac	agc	cct	cac	ggc	ctc	aag	cca	aat	acg	ttg	gaa	gga	aat	3124
	Asp	Ser	Tyr	Ser	Pro	His	Gly	Leu	Lys	Pro	Asn	Thr	Leu	Glu	Gly	Asn	
						1025				1030					1035		
	gtg	aca	ttt	aat	gag	gtc	gtg	ttc	aac	tat	ccc	act	cga	cca	gac	atc	3172
	Val	Thr	Phe	Asn	Glu	Val	Val	Phe	Asn	Tyr	Pro	Thr	Arg	Pro	Asp	Ile	
						1040			1045					1050			
60	ccc	gtg	ctc	cag	ggg	ctg	agc	ctc	gag	gtg	aag	aag	ggc	cag	acg	ctg	3220

	Pro Val Leu Gln Gly Leu Ser Leu Glu Val Lys Lys Gly Gln Thr Leu	
	1055 1060 1065	
5	gcc ctc gta ggt agc agt ggc tgt ggg aag agc aca gtt gtt cag ctc Ala Leu Val Gly Ser Ser Gly Cys Gly Lys Ser Thr Val Val Gln Leu	3268
	1070 1075 1080	
10	cta gag cgc ttc tat gac ccc ttg gct ggt tca gtg cta att gat ggc Leu Glu Arg Phe Tyr Asp Pro Leu Ala Gly Ser Val Leu Ile Asp Gly	3316
	1085 1090 1095 1100	
15	aaa gag ata aag cac ctg aat gtc cag tgg ctc cga gca cac ctg ggc Lys Glu Ile Lys His Leu Asn Val Gln Trp Leu Arg Ala His Leu Gly	3364
	1105 1110 1115	
	atc gtg tct cag gag ccc atc ctg ttt gac tgc agc att gcc gag aac Ile Val Ser Gln Glu Pro Ile Leu Phe Asp Cys Ser Ile Ala Glu Asn	3412
	1120 1125 1130	
20	att gcc tat gga gac aac agc cgg gtc gta tca cat gaa gag att gtg Ile Ala Tyr Gly Asp Asn Ser Arg Val Val Ser His Glu Glu Ile Val	3460
	1135 1140 1145	
25	cag gca gcc aag gag gcc aac ata cac cac ttc atc gag aca ctc cct Gln Ala Ala Lys Glu Ala Asn Ile His His Phe Ile Glu Thr Leu Pro	3508
	1150 1155 1160	
30	gag aaa tac aac acc aga gta gga gac aaa gga acc cag ctc tct ggt Glu Lys Tyr Asn Thr Arg Val Gly Asp Lys Gly Thr Gln Leu Ser Gly	3556
	1165 1170 1175 1180	
35	ggc cag aaa cag cgc att gcc ata gct cgc gct ctt gtt aga cag cct Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg Ala Leu Val Arg Gln Pro	3604
	1185 1190 1195	
	cat att ttg ctt ttg gat gaa gct aca tca gct ctg gat aca gaa agt His Ile Leu Leu Leu Asp Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser	3652
	1200 1205 1210	
40	gaa aag gtt gtc caa gaa gcc ctg gac aaa gcc aga gaa ggc cgc acc Glu Lys Val Val Gln Glu Ala Leu Asp Lys Ala Arg Glu Gly Arg Thr	3700
	1215 1220 1225	
45	tgc att gtg atc gcc cac cgc ttg tcc acc atc cag aat gca gat tta Cys Ile Val Ile Ala His Arg Leu Ser Thr Ile Gln Asn Ala Asp Leu	3748
	1230 1235 1240	
50	ata gtg gtg ttt cag aat ggc aaa gtc aag gag cat ggc aca cat caa Ile Val Val Phe Gln Asn Gly Lys Val Lys Glu His Gly Thr His Gln	3796
	1245 1250 1255 1260	
55	cag ctg ctg gcc cag aaa ggc atc tat ttt tcc atg gtc agt gtc cag Gln Leu Leu Ala Gln Lys Gly Ile Tyr Phe Ser Met Val Ser Val Gln	3844
	1265 1270 1275	
	gct gga gca aag cgc tagtgaactg tggccatatg agctgttaaa tatttttttaa Ala Gly Ala Lys Arg	3899
	1280	
60	tattttgtgtt aaaacatggc atttaaatcaa agttaaagg tgagcactta ctggaaaaac	3959

tatgtagaac tacctgttta acatttcttg ctgcaactga agatcattcc accaagttca 4019
 gagtcttcag attttataat taaaggaacc aaaagaaaca ttatctgatg gaataaaata 4079
 ctggtgttaa ttgcattata aaattataga gtaattcaaa gtagattttg ttaataaatt 4139
 gtataatttt tgtttatatt ttatttgtaa cttactgctt tgctgaaaga ttatagaagt 4199
 5 ggtaaaaaagt actgaatgtt tgaataaagt gctagctata ataaaactaa acttttatat 4259
 caaaaaaaaaa aaaaaaaaaa 4279

<210> 27

<211> 1281

10 <212> PRT

<213> Canis familiaris

<400> 27

15 Met Asp Pro Glu Gly Gly Arg Lys Gly Ser Ala Glu Lys Asn Phe Trp
 1 5 10 15
 Lys Met Gly Lys Lys Ser Lys Lys Lys Glu Lys Lys Glu Lys Lys Pro
 20 20 25 30
 Thr Val Ser Thr Phe Ala Met Phe Arg Tyr Ser Asn Trp Leu Asp Arg
 35 40 45
 20 Leu Tyr Met Leu Val Gly Thr Met Ala Ala Ile Ile His Gly Ala Ala
 50 55 60
 Leu Pro Leu Met Met Leu Val Phe Gly Asn Met Thr Asp Ser Phe Ala
 65 70 75 80
 25 Asn Ala Gly Ile Ser Arg Asn Lys Thr Phe Pro Val Ile Ile Asn Glu
 85 90 95
 Ser Ile Thr Asn Asn Thr Gln His Phe Ile Asn His Leu Glu Glu Glu
 100 105 110
 Met Thr Thr Tyr Ala Tyr Tyr Tyr Ser Gly Ile Gly Ala Gly Val Leu
 115 120 125
 30 Val Ala Ala Tyr Ile Gln Val Ser Phe Trp Cys Leu Ala Ala Gly Arg
 130 135 140
 Gln Ile Leu Lys Ile Arg Lys Gln Phe Phe His Ala Ile Met Arg Gln
 145 150 155 160
 35 Glu Ile Gly Trp Phe Asp Val His Asp Val Gly Glu Leu Asn Thr Arg
 165 170 175
 Leu Thr Asp Asp Val Ser Lys Ile Asn Glu Gly Ile Gly Asp Lys Ile
 180 185 190
 Gly Met Phe Phe Gln Ser Ile Ala Thr Phe Phe Thr Gly Phe Ile Val
 195 200 205
 40 Gly Phe Thr Arg Gly Trp Lys Leu Thr Leu Val Ile Leu Ala Ile Ser
 210 215 220
 Pro Val Leu Gly Leu Ser Ala Ala Ile Trp Ala Lys Ile Leu Ser Ser
 225 230 235 240
 45 Phe Thr Asp Lys Glu Leu Leu Ala Tyr Ala Lys Ala Gly Ala Val Ala
 245 250 255
 Glu Glu Val Leu Ala Ala Ile Arg Thr Val Ile Ala Phe Gly Gly Gln
 260 265 270
 Lys Lys Glu Leu Glu Arg Tyr Asn Lys Asn Leu Glu Glu Ala Lys Gly
 275 280 285
 50 Ile Gly Ile Lys Lys Ala Ile Thr Ala Asn Ile Ser Ile Gly Ala Ala
 290 295 300
 Phe Leu Leu Ile Tyr Ala Ser Tyr Ala Leu Ala Phe Trp Tyr Gly Thr
 305 310 315 320
 Ser Leu Val Leu Ser Ser Glu Tyr Thr Ile Gly Gln Val Leu Thr Val
 325 330 335
 55 Phe Phe Ser Val Leu Ile Gly Ala Phe Ser Ile Gly Gln Ala Ser Pro
 340 345 350
 Ser Ile Glu Ala Phe Ala Asn Ala Arg Gly Ala Ala Tyr Glu Ile Phe
 355 360 365
 60 Lys Ile Ile Asp Asn Lys Pro Ser Ile Asp Ser Tyr Ser Lys Ser Gly

	370		375		380	
	His Lys Pro Asp Asn Ile Lys Gly Asn Leu Glu Phe Lys Asn Val His					
	385		390		395	400
5	Phe Ser Tyr Pro Ser Arg Lys Glu Val Lys Ile Leu Lys Gly Leu Asn					
		405		410		415
	Leu Lys Val Gln Ser Gly Gln Thr Val Ala Leu Val Gly Asn Ser Gly					
		420		425		430
	Cys Gly Lys Ser Thr Thr Val Gln Leu Met Gln Arg Leu Tyr Asp Pro					
		435		440		445
10	Thr Asp Gly Met Val Cys Ile Asp Gly Gln Asp Ile Arg Thr Ile Asn					
		450		455		460
	Val Arg His Leu Arg Glu Ile Thr Gly Val Val Ser Gln Glu Pro Val					
		465		470		475
	Leu Phe Ala Thr Thr Ile Ala Glu Asn Ile Arg Tyr Gly Arg Glu Asn					
15			485		490	495
	Val Thr Met Asp Glu Ile Glu Lys Ala Val Lys Glu Ala Asn Ala Tyr					
		500		505		510
	Asp Phe Ile Met Lys Leu Pro Asn Lys Phe Asp Thr Leu Val Gly Glu					
		515		520		525
20	Arg Gly Ala Gln Leu Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala					
		530		535		540
	Arg Ala Leu Val Arg Asn Pro Lys Ile Leu Leu Leu Asp Glu Ala Thr					
		545		550		555
	Ser Ala Leu Asp Thr Glu Ser Glu Ala Val Val Gln Val Ala Leu Asp					
25			565		570	575
	Lys Ala Arg Lys Gly Arg Thr Thr Ile Val Ile Ala His Arg Leu Ser					
		580		585		590
	Thr Val Arg Asn Ala Asp Val Ile Ala Gly Phe Asp Asp Gly Val Ile					
		595		600		605
30	Val Glu Lys Gly Asn His Asp Glu Leu Met Lys Glu Lys Gly Ile Tyr					
		610		615		620
	Phe Lys Leu Val Thr Met Gln Thr Arg Gly Asn Glu Ile Glu Leu Glu					
		625		630		635
	Asn Ala Thr Gly Glu Ser Lys Ser Glu Ser Asp Ala Leu Glu Met Ser					
35			645		650	655
	Pro Lys Asp Ser Gly Ser Ser Leu Ile Lys Arg Arg Ser Thr Arg Arg					
		660		665		670
	Ser Ile His Ala Pro Gln Gly Gln Asp Arg Lys Leu Gly Thr Lys Glu					
		675		680		685
40	Asp Leu Asn Glu Asn Val Pro Pro Val Ser Phe Trp Arg Ile Leu Lys					
		690		695		700
	Leu Asn Ser Thr Glu Trp Pro Tyr Phe Val Val Gly Ile Phe Cys Ala					
		705		710		715
	Ile Ile Asn Gly Gly Leu Gln Pro Ala Phe Ser Ile Ile Phe Ser Arg					
45			725		730	735
	Ile Ile Gly Ile Phe Thr Arg Asp Glu Asp Pro Glu Thr Lys Arg Gln					
		740		745		750
	Asn Ser Asn Met Phe Ser Val Leu Phe Leu Val Leu Gly Ile Ile Ser					
		755		760		765
50	Phe Ile Thr Phe Phe Leu Gln Gly Phe Thr Phe Gly Lys Ala Gly Glu					
		770		775		780
	Ile Leu Thr Lys Arg Leu Arg Tyr Met Val Phe Arg Ser Met Leu Arg					
		785		790		795
	Gln Asp Val Ser Trp Phe Asp Asp Pro Lys Asn Thr Thr Gly Ala Leu					
55			805		810	815
	Thr Thr Arg Leu Ala Asn Asp Ala Ala Gln Val Lys Gly Ala Ile Gly					
		820		825		830
	Ser Arg Leu Ala Val Ile Thr Gln Asn Ile Ala Asn Leu Gly Thr Gly					
		835		840		845
60	Ile Ile Ile Ser Leu Ile Tyr Gly Trp Gln Leu Thr Leu Leu Leu Leu					

	850		855		860	
	Ala Ile Val Pro Ile Ile	Ala Ile Ala Gly Val Val Glu Met Lys Met				
	865	870	875		880	
5	Leu Ser Gly Gln Ala Leu Lys Asp Lys Lys Glu Leu Glu Gly Ala Gly					
	885	890		895		
	Lys Ile Ala Thr Glu Ala Ile Glu Asn Phe Arg Thr Val Val Ser Leu					
	900	905		910		
	Thr Arg Glu Gln Lys Phe Glu Tyr Met Tyr Ala Gln Ser Leu Gln Val					
	915	920		925		
10	Pro Tyr Arg Asn Ser Leu Arg Lys Ala His Ile Phe Gly Val Ser Phe					
	930	935		940		
	Ser Ile Thr Gln Ala Met Met Tyr Phe Ser Tyr Ala Gly Cys Phe Arg					
	945	950		955		960
	Phe Gly Ala Tyr Leu Val Ala Asn Glu Phe Met Asn Phe Gln Asp Val					
15	965	970		975		
	Leu Leu Val Phe Ser Ala Ile Val Phe Gly Ala Met Ala Val Gly Gln					
	980	985		990		
	Val Ser Ser Phe Ala Pro Asp Tyr Ala Lys Ala Lys Val Ser Ala Ala					
	995	1000		1005		
20	His Val Ile Met Ile Ile Glu Lys Ser Pro Leu Ile Asp Ser Tyr Ser					
	1010	1015		1020		
	Pro His Gly Leu Lys Pro Asn Thr Leu Glu Gly Asn Val Thr Phe Asn					
	1025	1030		1035		1040
	Glu Val Val Phe Asn Tyr Pro Thr Arg Pro Asp Ile Pro Val Leu Gln					
25	1045	1050		1055		
	Gly Leu Ser Leu Glu Val Lys Lys Gly Gln Thr Leu Ala Leu Val Gly					
	1060	1065		1070		
	Ser Ser Gly Cys Gly Lys Ser Thr Val Val Gln Leu Leu Glu Arg Phe					
	1075	1080		1085		
30	Tyr Asp Pro Leu Ala Gly Ser Val Leu Ile Asp Gly Lys Glu Ile Lys					
	1090	1095		1100		
	His Leu Asn Val Gln Trp Leu Arg Ala His Leu Gly Ile Val Ser Gln					
	1105	1110		1115		1120
	Glu Pro Ile Leu Phe Asp Cys Ser Ile Ala Glu Asn Ile Ala Tyr Gly					
35	1125	1130		1135		
	Asp Asn Ser Arg Val Val Ser His Glu Glu Ile Val Gln Ala Ala Lys					
	1140	1145		1150		
	Glu Ala Asn Ile His His Phe Ile Glu Thr Leu Pro Glu Lys Tyr Asn					
	1155	1160		1165		
40	Thr Arg Val Gly Asp Lys Gly Thr Gln Leu Ser Gly Gly Gln Lys Gln					
	1170	1175		1180		
	Arg Ile Ala Ile Ala Arg Ala Leu Val Arg Gln Pro His Ile Leu Leu					
	1185	1190		1195		1200
	Leu Asp Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser Glu Lys Val Val					
45	1205	1210		1215		
	Gln Glu Ala Leu Asp Lys Ala Arg Glu Gly Arg Thr Cys Ile Val Ile					
	1220	1225		1230		
	Ala His Arg Leu Ser Thr Ile Gln Asn Ala Asp Leu Ile Val Val Phe					
	1235	1240		1245		
50	Gln Asn Gly Lys Val Lys Glu His Gly Thr His Gln Gln Leu Leu Ala					
	1250	1255		1260		
	Gln Lys Gly Ile Tyr Phe Ser Met Val Ser Val Gln Ala Gly Ala Lys					
	1265	1270		1275		1280
	Arg					

55

<210> 28

<211> 52

<212> DNA

60

<213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide
 5 <220>
 <221> Unsure
 <222> (1)..(2)
 <223> n = a, c, g, or t/u
 10 <400> 28
 nntttttttt tttttttttt tttttttttt ttcgccggcg acttaagatc tt 52
 <210> 29
 <211> 27
 15 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic oligonucleotide
 20 <400> 29
 ccatacctaatac gactcact gtagggc 27
 <210> 30
 <211> 34
 25 <212> DNA
 <213> Canis familiaris
 <400> 30
 30 gcaaatgctt caatgcttgg ggatgcctgt ccaa 34
 <210> 31
 <211> 33
 <212> DNA
 35 <213> Canis familiaris
 <400> 31
 gagctgggtt cctttgtctc ctactctggt gtt 33
 40 <210> 32
 <211> 23
 <212> DNA
 <213> Canis familiaris
 45 <400> 32
 gcaaatgctg gttgcaggcc tcc 23